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AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

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INSIDE DOPE U.S.A.

Learn to live and laugh—
Thus delay your epitaph

By GEORGE F. TAUBENECK

Story of the Week
Gags of the Week
Philosophy of the Week
Verse of the Week
Christmas Is Wonderful
Christmas Stories
Scuzit, Please
Christmas In a Pot
Out of Our Mailbag
You Are the Master of Your Thoughts

Story of the Week

Nothing is scarcer, in this world of crowded cities, than parking space. Friend of ours did find a spot—in front of the most disreputable saloon he'd ever seen—to park his Packard.

Following the banquet he returned to this spot. A shiny new Cadillac was backed in ahead of him. The Caddy was bumper-to-bumper against his Packard. Its brakes were locked; and he couldn't budge it without damaging both cars.

Somewhat nauseatedly our friend penetrated the haze of the bleary saloon.

"Does someone here," he coughed politely, "have a Cadillac parked out front?"

Sleaziest bum in this Skid Row Shelter responded:

"What color?"

Gags of the Week

A gossip is someone who will chin and bare it.—JOEL GRAY in the *Catholic Digest*.

Some women seem to think their clothes are old if they're worn out—once!—*Town Journal*.

Philosophy of the Week

Only to a child is pure happiness possible; afterwards it is tainted with knowledge that it will not last, and the fear that one will have to pay for it.—A. A. MILNE.

A generous man is grateful for a small gift, and a stingy man is not grateful for a great gift.—THEODORE COOK TAYLOR.

Man can take the atom apart. It takes God to hold it together.—*SAE Journal*.

The right word in the right place is what has given vitality and stamina to the classics of literature, just as surely as the right medicine at the right time has kept life itself going on.—E. F. ALLEN.

Verse of the Week

We open here our treasures and our gifts:
And some of it is gold,
And some is frankincense,
And some is myrrh;
For some has come from plenty,
Some from joy,
And some from deepest sorrow of the soul.
But thou, O God, dost know the gift is love.
Accept the gift and all the life we bring.

—HERBERT H. HINES

Christmas Is Wonderful

Isn't the above a grand salute to the Christmas Spirit?

And Christmas *is* a "spirit." At no other time of the year is love so apparent, so genuine, and so widespread. It's a time for giving and forgiving, for gratitude and happiness.

Inasmuch as *fun* is an ingredient of happiness, too, we present herewith a few Xmas jokes.

Christmas Stories

A department store Santa Claus gave pudgy Irma an orange.

She looked at it distastefully.

"What do you say to Santa?" prompted her mother.

"Peel it," commanded Irma.

(Concluded on Page 7, Column 1)

G-E Home Cooling Line To Feature Air-Cooled Models

NEW YORK CITY — Air-cooled units that cool an entire house without using water, and space-saving downflow and horizontal models designed for use in basementless houses highlight General Electric's 1954 line of home cooling equipment.

The addition of a 1½-ton unit for installation in smaller houses and new and improved upflow models for houses with basements completes the line.

Every water-cooled G-E home cooling unit will have an air-cooled counterpart, according to S. J. Levine, general manager of the G-E home heating and cooling department.

Reduced installation costs and flexibility of application are outstanding features of the new G-E line, he said.

Installed costs on the downflow and horizontal models are expected to be lower through savings on floor

(Concluded on Page 4, Column 1)

Manitowoc Includes Refrigerator-Freezer In '54 Line of Uprights

MANITOWOC, Wis. — In addition to its 1954 line of upright home freezers, Manitowoc Equipment Works here will introduce a new freezer-refrigerator combination at the Winter Market.

Named the Manitowoc "2-Zone," it combines a 10-cu. ft. self-defrosting refrigerator and an 11½-cu. ft. home freezer in one kitchen-styled appliance requiring only 2½ by 3 ft. of floor space.

The double-duty 2-Zone is designed with the refrigerator on top, the freezer below. With this arrange-

(Concluded on Page 4, Column 4)

Perfection Enters Room Air Conditioner Field

CLEVELAND — Perfection Stove Co. here has announced its entry into the room air conditioner field with a line of ½, ¾, and 1-hp. units which provide cooling, heating, and automatic operation, all at the same cost.

The thermostat is built in at the factory, for fully-automatic climate control. The unit cools, reduces humidity and dampness, warms when it's chilly, and filters the air, and also exhausts stale air and ventilates.

Four adjustable grilles direct the

(Concluded on Page 15, Column 3)

Quicfrez Offers 'Twin' Refrigerator, Freezer

FOND DU LAC, Wis.—Five new refrigerator models with colorful exteriors and interiors and six new freezers—two upright and four chest models—have been introduced by Quicfrez, Inc. here for 1954.

The company also announced a new combination—the Quicfrez "Twins"—made up of a 4.2-cu. ft. upright freezer and a matching 5.6-cu. ft. refrigerator. The two units have a plastic-covered top that provides extra work space.

The 1954 refrigerator models are the "Custom" H74G, "Stylist" H74H, "Imperial" H74J, "Stylist" H94C, and "Imperial" H96D.

Features of the new models include

(Concluded on Page 15, Column 1)

'54 Servel Line Introduced At Sales Meeting

CHICAGO—Servel's appliance line for 1954 includes a new casement-type room air conditioner that is controlled by pulling out the front panel —"like opening a drawer," a new "reverse cycle" cooling-heating room air conditioner, and 19 refrigerator models with inside door panels and breaker strips of "cerulean" blue.

Also in the line are three horizontal and three vertical models of home freezers ranging in capacity from 9 to 22 cu. ft.; the "Wonderbar Refrigerette"; and 14 gas and 14 electric models of automatic water heaters. Several larger water heater models have been added.

The company's 1954 line was introduced here last week at a distributor sales conference.

A special decorative touch, keyed in with the growing popularity of copper in architecture and home decoration, is available on all three double-door "automatic ice-maker" refrigerator models. In addition to the standard all-white exterior finish, these models may be obtained with the top doors plated with satin-brushed copper. Scuff plates of the copper models are finished to match the upper doors.

The company's compact new air conditioner designed to fit casement windows is available in ⅓ and ½-hp. models. Servel is also offering three units for standard windows, including two ¾ hp. and one 1 hp. (avail-

(Concluded on Back Page, Column 1)

Latches Aren't Enough! Remove Whole Door, Says Miami Official

MIAMI BEACH, Fla.—Removing the latches from abandoned refrigerators is not enough to insure safety, according to David Topp, city zoning inspector here.

Topp recently argued in municipal court and won his point that the entire door should be removed, not just the latches. He believe that as long as the door remains on, other children could imprison a child in a refrigerator and hold the door closed on him.

Topp's opinion was expressed in an action against the Jackson Refrigeration Service here in which Jackson was fined $50—half on which was suspended—for keeping used refrigerators in the yard behind his shop.

(Concluded on Page 4, Column 5)

Program Set for ASHVE Houston Meeting Jan. 25

HOUSTON, Texas—The 60th annual meeting of the American Society of Heating and Ventilating Engineers will be held here Jan. 25-27, 1954.

Plans for the meeting, at which a total of 13 technical papers will be presented at four sessions, are now complete according to D. M. Mills, general chairman of the Committee on Arrangements for the South Texas chapter.

Topics to be covered in the sessions include cooling towers, automobile air conditioning, panel heating and controls, the heat pump, the availability and utilization of solar energy for heating, air jets, room air distribution, a new type radiometer, residence cooling, and building heating.

The first session will be held at the Rice hotel, meeting headquarters, on Monday morning, with ASHVE President Reg. F. Taylor, Houston, presiding and L. T. Mart, Kansas City, Mo., as chairman.

Registration of members and guests will begin on Sunday, Jan. 24, at the Rice hotel and will continue through Wednesday. The Houston members expect an attendance of 1,200 members and their friends and ladies.

The entertainment program, starting with a welcome luncheon on Monday and concluding with the 60th annual banquet on Wednesday, has been planned to provide a well-arranged selection of events to ex-

(Concluded on Back Page, Column 4)

Flexibility Is Feature In UsAirco '54 Line

MINNEAPOLIS — "Unusual flexibility" is featured in its completely restyled and re-engineered 1954 line of packaged air conditioners for store, office, restaurant, residential, and other uses, United States Air Conditioning Corp. has announced.

The new equipment, available in 2, 3, 5, 7½, and 10-hp. sizes, is designed to permit a choice of air intake and discharge panels for front, side, or rear installation to fit any field requirement.

The units are sectional construction, comprising compressor, blower, and plenum, each of which can be ordered separately. The bottom component section, including compressor, condenser coil, filter, and control panel, is interchangeable with UsAirco home air conditioner. For year-round operation, a heating coil

(Concluded on Page 4, Column 3)

Cool Hogs = Profitable Pork Chops

Purdue Profs Propound Principle for Producing Profitably Plump Porkers

WASHINGTON, D. C.—Next time you see a hog wallowing around in a hog wallow, don't think that he's just a dirty pig that loves to slop around in the mud, but appreciate the fact that he's trying desperately to cool off, and would like nothing in the world better than a nice air conditioned pig pen.

If he had that air conditioned comfort, he'd be a healthier, happier hog, and he'd grow into nicer pork chops in a faster period of time at higher prices and less costs to the farmer who raised him.

That, in effect, was the information imparted by the paper with the formidable title, "The Effect of Climatic Environment on the Growth Rate and Feeding Efficiency of Swine" by W. E. Fontaine, W. L. Sibbitt, and F. N. Andrews, Purdue university.

"Hogs get hotter'n most anybody," declared Prof. Fontaine in his presentation on the subject. "They are possibly the most sensitive of all animals to high temperatures."

One of the reasons the hog gets so uncomfortable when the temperature shoots up is that he doesn't sweat. All he can do when he gets too hot is to pant, roll in the mud,

(Concluded on Page 4, Column 3)

Kelvinator Holds '54 Refrigerator Line to 5 Models

Short Line In Accordance With Dealer Request; All Models Are Self-Defrosting

NEW YORK CITY — Kelvinator's 1954 line of household refrigerators will include just five models (as contrasted to 10 last year) and all five will have automatic defrosting.

The reduction in number of models and the inclusion of automatic defrosting on every model is a move aimed at fulfilling dealer requests for shorter lines and fast-turnover models, declared D. A. Packard, general sales manager, and Walter Jeffrey, sales manager of refrigeration products, at the introduction of the new models at a press conference here last week.

Kelvinator, in introducing its "40th Anniversary" models also showed a home freezer line of five models, including two new uprights in "revolutionary" design; and an electric range line with emphasis concentrated of four key models.

The five models in the household refrigerator line include 7 and 9-cu. ft. sizes with pushbutton-controlled automatic defrosting, 9 and 11-cu. ft. sizes with timer-controlled automatic defrosting, and a 12-cu. ft. combination two-door freezer and automatic defrosting refrigerator.

In addition to automatic defrosting, key features are new "Sea-Tone" interior color styling, roll-out and slide-out shelves, deepened door shelves, built-in butter chest, and new crispers—of metal finished with gold and white fronts on three models.

(Concluded on Page 13, Column 1)

Curtis Introduces 100th Anniversary Line of Room Coolers

ST. LOUIS—The Refrigeration Div. of Curtis Mfg. Co. has announced introduction of a new 100th anniversary line of window-type room air conditioners.

The 1954 line includes a ¾-hp. standard model, a ¾-hp. deluxe model, and a 1-hp. deluxe model. Retail prices of the units are $289.95, $379.95, and $459.95, respectively. Deluxe models are equipped with thermostatic control, heating unit, special exhaust device, and two-speed fan control.

For use in the home or office, the Curtis air conditioner is pastel green

(Concluded on Page 4, Column 3)

Hotel Situation 'Tight' For First Mart Week

CHICAGO—All Loop hotels and many of the major hotels outside the Loop area are booked solid for all or a good part of the first week of the Winter Homefurnishings Markets, which open here Jan. 4 at The American Furniture Mart and the Merchandise Mart.

The Conrad Hilton, the Edgewater Beach, and a few of the smaller Loop hotels state that they "might be able to accommodate" those who planned to arrive Jan. 8 or later.

It is believed that hotel space will be pretty generally available the second week of the Markets.

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Deepfreeze Announces Prices for 1954 Lines

CHICAGO—Suggested retail prices for its 1954 lines have been announced by Deepfreeze Appliance Div., Motor Products Corp. The prices follow:

Model	Refrigerators	Suggested Retail Prices
F-10	(9.6 c.f.)	$239.95
G-10	(9.6 c.f.)	299.95
G-12	(11.5 c.f.)	349.95
A-10	(9.3 c.f.)	399.95
A-12	(11.0 c.f.)	469.95
	Freezers	
B-86	(7.7 c.f. chest)	279.95
C-86	(7.7 c.f. chest)	299.95
B-146	(13.6 c.f. chest)	399.95
C-146	(13.6 c.f. chest)	459.95
C-186	(17.8 c.f. chest)	549.95
CU-126	(12.0 c.f. upright)	399.95
C-246	(23.7 c.f. chest)	639.95
CU-196	(18.6 c.f. upright)	599.95
	Air Conditioners	
DR-33	(½ hp.)	229.95
DR-75	(¾ hp.)	299.95
DRT-76	(¾ hp.)	369.95
DRT-76H	(¾ hp., heater)	379.95
DRT-100	(1 hp.)	429.95
DRT-100H	(1 hp., heater)	439.95
	Electric Ranges	
RA-3	(Apartment)	189.95
RB-4	(Custom)	269.95
RD-4	(Custom)	349.95
RE-4	(Imperial)	399.95
	Electric Water Heaters	
WB-312	(31 gal.)	129.95
WB-422	(42 gal.)	139.95
WB-502	(50 gal.)	154.95
WB-662	(66 gal.)	184.95
WB-812	(81 gal.)	199.95
WC-302	(30 gal.)	139.95
WC-402	(40 gal.)	149.95

'54 Sales of Home Air Conditioning Systems May Increase More Than 100%, Says Levine

NEW YORK CITY—An increase of more than 100% in industry sales of central system air conditioners for the home in 1954 was predicted here recently by S. J. Levine, general manager of the General Electric Co.'s home heating and cooling department.

He estimated central system home cooling units would be installed in more than 120,000 new and existing homes next year compared with some 50,000 such installations this year.

Levine said 1953 will be the biggest year in the air conditioning industry's history. The most significant trend during the record year he said has been the rapid development of the market for systems for cooling the complete home.

"It is on its way to becoming the biggest single market for air conditioning equipment," Levine stated. "Sales of central system home cooling units should pass those of packaged cooling equipment sold for installation in commercial and industrial establishments in 1954, and by 1955 they should overtake room cooler sales in dollar volume."

Emphasizing that the potential of the home cooling market is just beginning to be tapped, the G-E official declared that by 1963 annual sales of central system home units would be close to the 1,000,000 mark.

Levine said that the great interest in home cooling is a definite trend that reflects the American public's growing desire for comfortable living.

Builders everywhere, he added, are finding air conditioning a big sales attraction.

Pointing out that G-E sales in 1953 were greater above the Mason and Dixon line than in the South, Levine said interest in home cooling was not restricted to any particular region.

"There is hardly a place in this country where it doesn't get uncomfortably hot during the summer," he said.

Airtemp Outlet Places Miillon Dollar Order

HARTFORD, Conn. — Chrysler Airtemp announced that Standard Distributors of Hartford has ordered $1,238,000 worth of Chrysler Airtemp air conditioners, furnaces, and parts.

Placed by Standard's president, Carl J. Sala with Ned F. Foulds, Chrysler Airtemp regional sales manager, the large order calls for commercial, industrial, and residential "packaged" air conditioners, warm air furnaces, and hot water and steam boilers.

Standard Distributors recently was named wholesale distributor in Connecticut for Chrysler Airtemp heating and air conditioning products, excepting room air conditioners.

Appointment of Standard Distributors is one of many similar franchises awarded by Chrysler Airtemp in a new product distribution program which began this Fall.

In the Connecticut area, unit deliveries in 1954 will be made on 24 to 48-hour notice, it was stated. A complete service depot is being established at Standard's Hartford headquarters and factory-trained engineers being added to the staff.

Servel Air Conditioning Line To Be Shown at 6 Regional Conferences

EVANSVILLE, Ind.—Servel's new line of 1954 air conditioning equipment will be introduced to distributors and dealers at a series of six regional sales conferences in January.

Dates and places for the conferences are as follows: Jan. 4—Los Angeles (Hotel Statler); Jan. 6—Houston (Hotel Shamrock); Jan. 8—Dallas (Hotel Adolphus); Jan. 11—Atlanta (Georgian Terrace hotel); Jan. 13—New York (Hotel Roosevelt); Jan. 15—Chicago (Edgewater Beach hotel).

The conference in Dallas will be especially for gas utility executives.

Arrangements for the regional meetings are being completed under the direction of John A. Gilbreath, Servel's assistant vice president in charge of air conditioning, and H. R. Nielsen, air conditioning sales manager.

Servel's present line will be greatly expanded for 1954 with the addition of new models to provide wider coverage of the air conditioning market, it was stated. Details of the new products for 1954 will not be announced in advance of the six regional meetings, Nielson said.

The year now drawing to a close has been a record-breaking sales year for Servel air conditioning, according to Gilbreath. He recently announced that the company's air conditioning volume for 1953 was already more than 101% greater than its volume for 1952.

Worthington Division Appoints P. O. Bancroft Account Supervisor

HARRISON, N. J. — Appointment of Paul O. Bancroft as account supervisor for Worthington Corp.'s Air Conditioning and Refrigeration Div. was announced recently by M. E. Ziegenhagen, advertising manager.

P. O. Bancroft

Bancroft will assume responsibility for all air conditioning and refrigeration advertising and sales promotion.

Ziegenhagen explained that the appointment reflects the greatly expanded advertising and sales promotion program planned for Worthington residential and commercial air conditioning.

This need is highlighted by the construction of a new plant at Decatur, Ala., for the production of package air conditioners.

Bancroft graduated from Norwich university in 1947, after serving for three years with the U. S. Army. He then joined the advertising and sales promotion department of General Electric Co. with assignments at Cleveland and Schenectady.

In November, 1952, he moved to Worthington Corp. as account supervisor for the Merchandising Div. and supervisor of displays and exhibits. He is a member of the Exhibit Advisory Council and the Exhibit Projects Council of the Industrial Advertising Research Institute, it was announced.

Motor Products Corp. Appoints L. J. Sorensen Executive Vice Pres.

DETROIT—L. J. Sorensen has been promoted to the new post of executive vice president of Motor Products Corp., manufacturer of Deepfreeze home appliances and automotive parts, it was announced by L. G. Jacques, president.

Since August, 1953, Sorensen has been serving as executive vice president of the Deepfreeze Appliance Div., where he has been chief executive since 1950. He joined Motor Products in Detroit in 1947 as treasurer and controller and became a director in 1951.

In his new capacity, Sorensen will assist Jacques in supervising all operations of the corporation. He plans to maintain offices at the Deepfreeze headquarters in North Chicago, Ill., and at the parent company's headquarters located in Detroit.

F. F. Duggan is vice president and general manager of the Deepfreeze Appliance Div.

UsAirco Leases Space To Double Capacity

MINNEAPOLIS—In its first major expansion move, United States Air Conditioning Corp. has more than doubled its manufacturing space with the lease of the group of industrial and office buildings on the 25-acre tract adjoining its existing main plant and offices on Como Ave. here.

The initial step in a long-range program planned by the company's new management, the leasing transaction involves approximately 138,000 sq. ft. of modern, well-equipped manufacturing area and more than 11,000 sq. ft. of office space, owned and formerly occupied by Minneapolis-Moline Co.

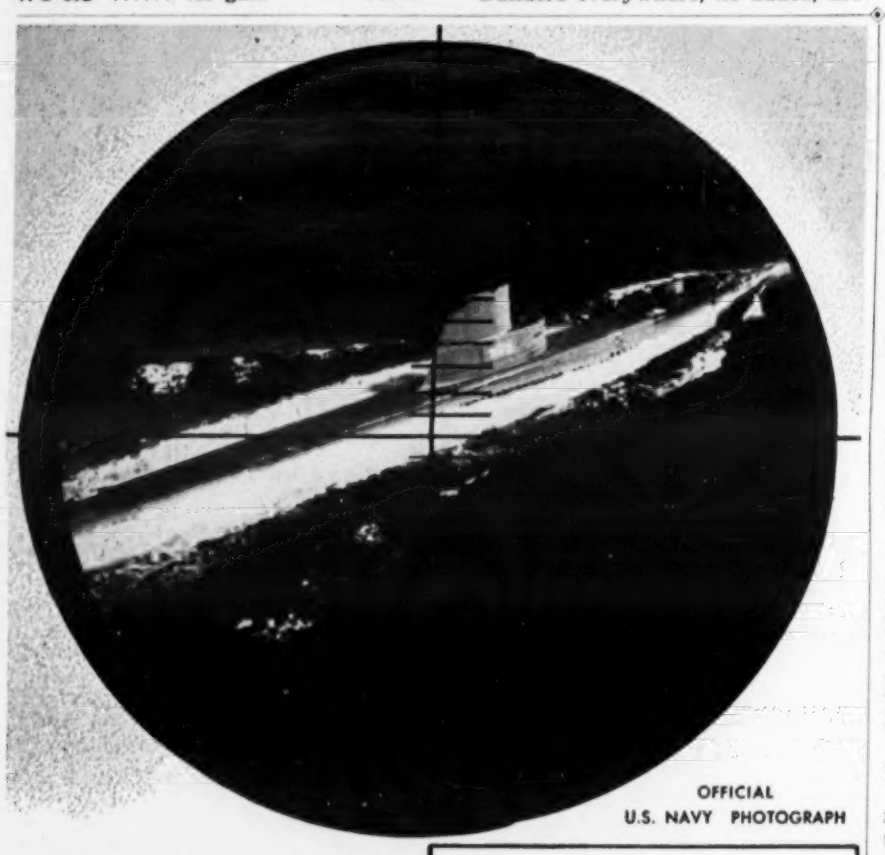
"During the fiscal year 1953, UsAirco's production increased by 50%, resulting in a serious overloading of plant facilities," D. E. Feinberg, vice president and general manager, said. "The newly-acquired space will provide room for greater expansion of production in the coming year and will also permit more efficient operations and resultant cost reductions."

This move, tied in with the company's future plans, calls for growing emphasis on its packaged refrigeration division which during the past year accounted for a major portion of total sales, Feinberg said. This division produces self-contained central station air conditioning equipment, packaged air conditioning units for stores and offices, home air conditioners, and window-type room air conditioners.

The newly-leased factory buildings will be utilized for the manufacture of coils, blowers, and room air conditioners. All departments will be in full operation by Jan. 15, 1954, according to the announcement.

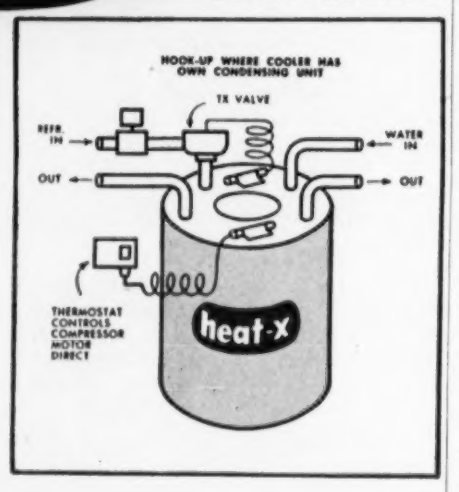
The expansion move is expected to result in the employment of 140 additional production personnel within the next three months, Feinberg said.

The existing main office and plant contains approximately 90,000 sq. ft. of manufacturing space and 8,000 sq. ft. of offices. The company's room air conditioner department utilizes an additional 36,000 sq. ft. in the Northwest Terminal in Minneapolis.



OFFICIAL
U.S. NAVY PHOTOGRAPH

COOL DRINKING WATER UNDER THE SEA



There's plenty of it for men aboard the U.S. Navy's new and re-conditioned submarines.

Typical is the "Diodon" shown above. Aboard this sub, a Heat-X cast aluminum water cooler chills ample quantities of drinking water to supply officers and crewmen. The unit, connected into the ship's refrigeration circuit, has a cooling capacity of 15 gallons per hour. The cooler is installed in an insulated housing and is equipped with suitable Navy-type controls.

Whatever the special problems of your next liquid chilling installation, check with Heat-X-Changer Co. . . . heat transfer products by heat transfer engineers.

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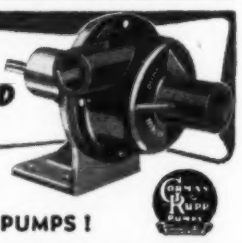

• TINY NEW CENTRIFUGAL PUMPS !

Serving wide range of applications. Liquid transfer, machine tool coolant, plating baths, air conditioning, chemical handling, abrasive solutions, domestic and commercial appliances.

Built on pedestal for belt drive as shown, also close coupled to electric motor. Materials vary with pump use - synthetic rubber bodies, stainless steel shafts are standard.

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THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

FREE FOLDER

Describes New Westinghouse Heat Pumps

Find out about this latest addition to the complete Westinghouse Air Conditioning line.

See your local distributor for full details, or write Westinghouse Electric Corp., Air Conditioning Division, Hyde Park, Boston 36, Massachusetts.

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For Food, Medicine, Bone, Tissue

Lower Equipment Costs Seen as Important For More Rapid Growth of Freeze Drying

WASHINGTON, D. C. — Developments are afoot in the "freeze drying" process of preserving foodstuffs, medicines and serums, and human bones and tissue which can and are having revolutionary developments in these fields, it was brought out in the talk "Freeze Drying 1953" presented by E. W. Flosdorf, F. J. Stokes Machine Co., before the annual convention of the American Society of Refrigerating Engineers.

Pilot plant operations are already in effect on freeze drying of such foodstuffs as orange juice, milk, fish fillets, and steaks and chops, and work done thus far has shown good results when these foodstuffs are reconstituted, Flosdorf declared.

Widespread application of the freeze drying process could revolutionize food processing and distribution methods, the speaker pointed out. The Armed Services have shown a keen interest in the possibilities of the process along these lines.

Flosdorf declared the advantages of the freeze drying process to be the following:

1. Heat sensitive materials are unharmed.
2. There is a minimum loss of volatility.
3. There is no surface action.
4. There is no concentrating effect.
5. There is no coagulation of colloids.
6. No case hardening results.
7. There is no bacteriological growth.
8. No enzymatic change is noticeable.
9. There is no oxidation.

In human and veterinary medicine, the freeze drying process is playing an increasingly important role. The preservation and storage of human bone substance through this process saved many Korean wounded from becoming life-long cripples. Now human tissue from fresh cadavers is being preserved to help save the lives and prevent scarring of those injured in battle, accidents, or fires. New veterinary serums which will help farmers produce more and healthier livestock come about through the freeze drying.

Freeze drying is accomplished in two stages. First stage involves the sublimation of the ice to a 10% moisture content. The second stage involves the removal of the residual moisture from 10% to 0.5%.

For many items excessive low temperatures are not needed, with -10° to -20° F. being sufficient for the first stage, and -40° sufficing for the final drying.

However, for some foodstuffs and for veterinary serums and human tissues, temperatures of -75° to -85° are necessary in the initial stages, and terminal temperatures of -100° F. or lower are used for the final dehydration process.

The refrigeration industry can contribute to the freeze drying field by developing better-suited and less expensive systems for use in this application, Flosdorf declared.

He offered these suggestions as possibilities for investigation in the cutting of costs:

(1) Development of a better vapor condenser, with special consideration being given to shape and arrangement.

(2) Investigation of cheaper cooling mediums, such as trichlorethylene, for use in the heat exchangers of such systems.

(3) Development of a sealed system of the direct expansion single-stage type for the low temperatures.

J. S. McCollum, in a discussion of the paper, also urged the refrigeration industry to enter deeply into development and investigative work in conjunction with freeze drying.

Surplus Dealers' Show To Be In N. Y. Jan. 10-12

NEW YORK CITY—The third annual trade show and convention of the Institute of Surplus Dealers will be held in Madison Square Garden Jan. 10-12, the group has announced.

The show will have $2,000,000 worth of equipment on the trading block for the 20,000 manufacturers, wholesalers, jobbers, and consumers expected to attend, it was reported.

Exhibitors will include firms in the electrical, housewares, hardware, automotive, aircraft, soft goods, medical, sporting goods, furnishings, and related fields, with free space having been allocated to the departments of Defense, Army, Navy, and Air Force.

The institute explained that surplus dealers help industry move products which do not warrant distribution through normal sales routines. Such products include discontinued lines, small lots, or products which have been dropped because a plant has switched to an entirely different type of production.

DISA Task Group To Develop Standards for Bulk Milk Dispensers

WASHINGTON, D. C.—The Technical Committee of Dairy Industries Supply Association has formed a 29th task committee—this one to formulate a suggested sanitary standard for bulk milk dispensers—in its continuing program of cooperation with other industry groups in developing and issuing voluntary 3-A Sanitary Standards.

3-A Standards are jointly developed by representatives of U. S. Public Health Service, International Association of Milk and Food Sanitarians, and the Sanitary Standards Subcommittee of Dairy Industry Committee (SSS-DIC).

At the first meeting of the task committee on bulk milk dispensers, held recently in Chicago, were the following representatives of DISA member companies:

J. M. Ammerman, Solar-Sturges Mfg. Co., Pressed Steel Car Co., Inc.; C. Paul Carlson, John Wood Co., Superior Metalware Div.; L. T. Gustafson, The Creamery Package Mfg. Co.; L. F. Norris, Norris Dispensers, Inc.; George W. Putnam, The Creamery Package Mfg. Co.; E. F. Rickelman, Penn Michigan Mfg. Corp.; Benjamin Rubin, Stevens-Lee Co.; and Frank H. Spencer, Solar-Sturges Mfg. Co., Pressed Steel Car Co., Inc.

Other manufacturers present as observers were: Milton Leathers, L. M. Leather's Sons; Orville Morrison, Sunroc Refrigeration Co. Inc.; and Fred J. Payson and Leonard U. Shapiro, United Refrigerator Co.

Putnam, a co-chairman of DISA's Technical Committee, presided.

Other participants were Dr. E. H. Parfitt, assistant executive secretary of Evaporated Milk Association, who serves as chairman of SSS-DIC; Dr. J. L. Barnhart, DISA technical director; and Roberts Everett, DISA executive vice president.

Bally Names Distributors In Montreal, Vancouver

BALLY, Pa.—Two Canadian distributors have been appointed by Bally Case & Cooler Co., according to Leon Prince, sales manager.

They are Maison Nadeau, Ltd., Montreal, Quebec, and Kingsway Refrigeration Co., Ltd., Vancouver, British Columbia.

The Nadeau firm will serve as exclusive distributor of Bally's refrigerated cases and coolers for the entire province of Quebec. The company was established in 1936. Kingsway is exclusive distributor for all of British Columbia.

Appointment of the two concerns is another step in broadening its market.

Jet Spray Cooler Moves Executive Offices, Plant

BOSTON—Jet Spray Cooler Co., manufacturer of the "Jet Spray Cooler," an electrically refrigerated drink dispenser, has moved its executive offices and plant to 33 Simmons St. here.

The firm also reported that a new, exclusive feature of its latest model is the "Rocket Faucet," described as "faster in action and easier to operate."

Canadian Refrigeration Show Will Be Held In Toronto Feb. 23 to 25

TORONTO, Ont., Can. — "The greatest array of refrigeration and air conditioning equipment in the history of Canada" will be assembled for the First Canadian Refrigeration and Air Conditioning Show at the Coliseum here Feb. 23-25, it was reported recently.

With over half the booth space already sold, the show will be a major industrial event in this country, it was pointed out.

Sponsored by the Canadian Refrigeration Manufacturers Association, the exposition will be attended by consulting engineers, architects, service engineers, dealers, wholesalers, and contractors from British Columbia to Newfoundland. The Refrigeration Service Engineers Society (Canada) will hold a national convention at the same time.

On hand, too, will be a large number of appliance dealers interested in household refrigeration, home summer air conditioners, food freezers, and other products, as well as locker operators and a large number of professional groups from dairies, ice cream plants, chain groceries, hotels, and restaurants, etc.

On Thursday, Feb. 25, the show will be open to the public who will see "Heating The Home With Refrigeration."

While the show will consist mostly of refrigerating and air conditioning equipment and its components, there will be many allied products also on display.

E-Z-SEE
LIQUID INDICATOR
NEW FLO INDICATOR FLAP SHOWS ALL FLOW CHANGES
Analyze flow, function of expansion valve, by means of E-Z to SEE sensitive flap, instantly responsive to variations in flow. Positively leak-proof — hundreds of thousands in use.
Available at Wholesalers everywhere
REMCO
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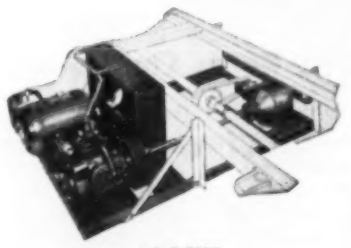
Whether you have a truck or a trailer to refrigerate, whether you want a semi-automatic or fully automatic operation, Kold-Hold can give you a better answer to your refrigeration problems. The addition of Kold-Trux "Mobilmatic" Highside Units to the proven line of Kold-Hold Lowsides provides several ways to refrigerate transportation equipment efficiently and economically. Kold-Trux Units can be used with "Hold-Over," Thin "Hold-Over" or Quick Action Plates to supply completely automatic and thermostatically controlled refrigeration requiring no attention from the driver. It is driven from a live axle, propeller shaft, or power take-off and engages and disengages without shock to the engine or transmission. A specially designed "Hydro-Pack" Blower is available for use with this system in high temperature application.

For semi-automatic operation, the newly redesigned "Hold-Over" Plates can be used with a mounted compressor or make-and-break connections to maintain predetermined truck temperatures for day-long trips.

Whatever your truck refrigeration needs, you can be sure of the right answer from Kold-Hold.

Which of these methods is best for you?



KOLD-TRUX

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

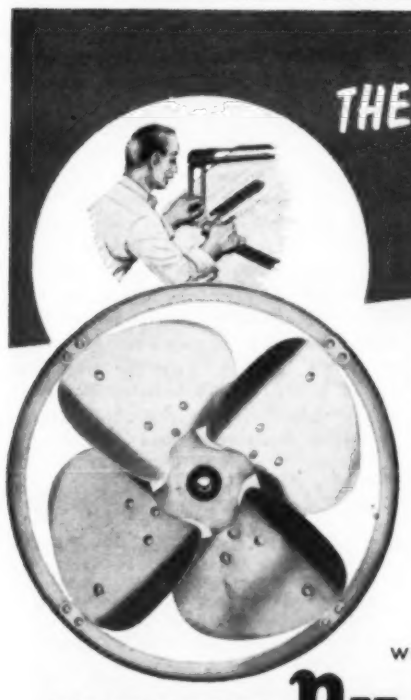
When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.

HOLD OVER PLATES

Tell us your truck refrigeration problems and send now for complete data and literature.

KOLD-HOLD



THE "RIGHT" PROPELLER IS VITAL TO YOUR PRODUCT

The application of the "Right" propeller can make the difference between a successful product and one that does not come up to the high standards of performance required in today's selling. Meier Nu-Air "Quiet" Propellers, in both evaporator and condenser blades with a "slinger" ring can give you maximum air movement with minimum H. P. yet with a *low noise level*.

Many manufacturers, outstanding for their products, specify Meier Nu-Air props. Complete engineering services available to aid you in new design work, modification of existing designs or any application problem.

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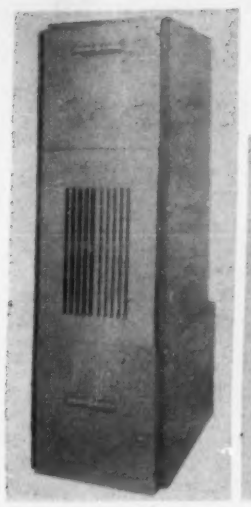
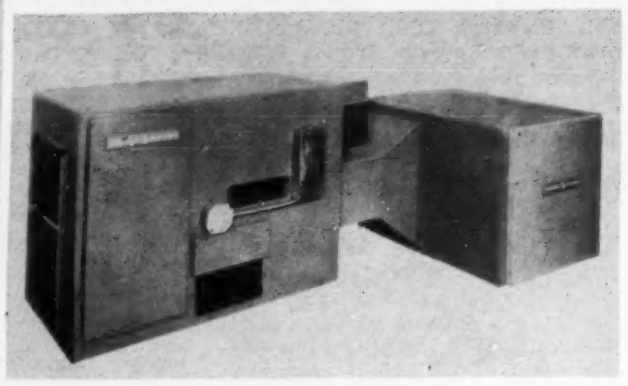


LEFT: G-E downflow heating and cooling unit. Furnace sits on top of home cooling unit. Furnace may be either oil or gas fired, cooling unit either water or air cooled.

BELOW: G-E horizontal heating and cooling unit. Furnace is at left. Cooling unit may be either water or air cooled, furnace either gas or oil fired.



G-E Home Air Conditioning Line--

(Concluded from Page 1, Column 2)

space requirements and the need for less ductwork.

The downflow unit makes possible the installation of year-round air conditioning in no more floor space than used for heating alone. It is estimated that a G-E downflow year-round air conditioning installation will save builders $100 worth of floor space compared to a side by side installation of heating and cooling equipment.

The downflow cooling unit was designed primarily for houses that are on slab foundations. The air flow comes in at the top of the unit, is filtered, cooled, and then comes out at the bottom into ducts imbedded in the slab which carry the cool air to rooms throughout the house.

It will be available in four sizes, including 1½-ton, 2-ton, 2½-ton, and 3-ton capacities. The unit is housed in a compact steel package—24 in. high, 36 in. deep, with the widths varying at 25 and 29 in., depending on the capacity of the unit.

The horizontal cooling units are designed primarily for houses with crawl space or large attics. They are also intended for the modernization market where space and cost are important considerations.

This unit requires no floor space at all and may be suspended from the ceiling in the utility room and basement, or tucked away in the attic and crawl space. It is estimated that installation of horizontal cooling units can save builders $200 worth of floor space.

It has the same dimensions and comes in the same four sizes as the downflow model.

Highlight of the upflow line used in houses with basements is the addition of the 1½-ton size to the line. The new smaller size cooling unit extends the range of application of this line to the mass-produced small house field, Levine said. The complete upflow line now consists of five sizes—1½ ton, 2 ton, 2½ ton, 3 ton, and 5 ton.

Improvements in this line include a new peak in both efficiency and quietness of operation.

All upflow units are similar in design and appearance. They are completely self-contained package units housed in a two-tone gray cabinet. They are 55 in. tall, and 30 in. deep, with widths varying at 21 and 25 in., depending on capacity.

The upflow cooling units are designed to integrate with upflow furnaces for year-round air conditioning.

All models are easily accessible from the front for servicing. All cooling will carry a five year warranty.

The new line of home cooling units is designed for use with General Electric's "Air-Wall" system of distributing conditioned air the year 'round. They may also be used with conventional air distribution systems.

Part of the 1954 line of General Electric home heating and cooling equipment will be produced at Trenton, N. J., in a new plant acquired earlier this year, Levine declared.

The Trenton plant, which has 300,000 sq. ft. of manufacturing area, will supplement production at Bloomfield, N. J.

Genuine Joe says:
"Stock WAGNER STANDARD ROTORS"

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BLOWER ASSEMBLY UNIT

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Now you can have the last word in product development — new, vastly improved LAU SERIES "A" BLOWER ASSEMBLY. It is the all-time outstanding achievement in the blower field. Overall size is considerably smaller than formerly. Many features are revolutionary — exclusive with Lau — and protected. Entire unit is die formed — lending itself to mass production on precision-built equipment with reflected low costs.

SPECIAL FEATURES
Patents Applied For

Write for Catalog Page 707-1

The LAU Blower Company, 2202 Home Ave., Dayton 7, Ohio
World's largest manufacturer of furnace blowers

Cool Hogs--

(Concluded from Page 1, Column 3)

and drink lots of water.

Where the economic effect comes into the picture is that when a hog gets too hot, he doesn't feel like eating, and since the extent, time, and quality of hog growth depends on the quantity and maintenance of an even rate in food intake, any disinclination on the part of the hog to eat is costly to the hog producer.

Furthermore, when the weather gets sizzling the hog is likely to turn pretty heavily to drink, and like his human counterparts, too much drink can make him sick, or even kill him.

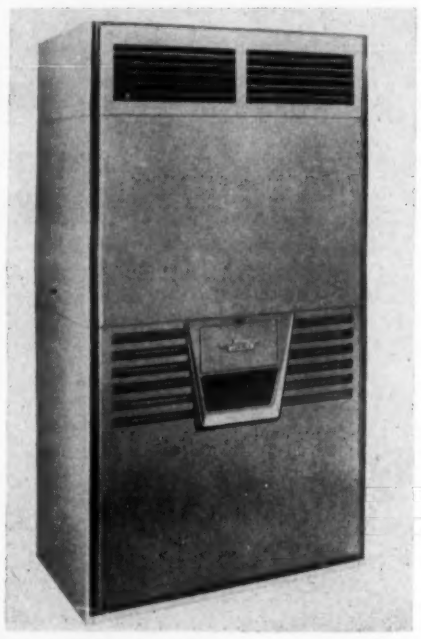
What's the best temperatures for the correct growth of hogs? From the study made by the professors, it would seem to be 55-60° F. When temperatures in which the hog exists go over 80° F., the animal ceases to eat properly, water consumption increases disproportionately, and the proper growth pattern is retarded.

Proper efficiency of feed conversion in swine (optimum rate is considered to be 8 lbs. per day) shortens the time it takes to produce a marketable hog. This is important to the farmer, since the longer it takes to produce a hog, the longer it will take the farmer to get his money out of the hog.

Prof. Fontaine declared that according to studies made up to the present, it has been shown that an increase of 10% in the feeding efficiency of swine would save hog growers in the United States an aggregate of $27 million per year.

Also, if proper climatic controls for hog raisers were to be put into effect, the whole geographic pattern of hog raising might possibly be changed, with far-reaching results.

Prof. Fontaine urged that the air conditioning industry work with agricultural experts in developing proper equipment for the air conditioning of hog-raising facilities.



COMPLETELY RESTYLED and re-engineered 1954 packaged air conditioner by United States Air Conditioning Corp.

UsAirco Line--

(Concluded from Page 1, Column 4)

can be mounted in the blower cabinet.

"Among the other design advances," the company said, "are new airfoil louver discharge grille; free and open air intake, designed for easy cleaning; a single filter section, handling both fresh and recirculated air; a central control panel, including manual reset high pressure cutout; new spring mounting, for vibrationless compressor operation."

The restyled cabinet features a two-tone blue finish. A vinyl plastic decorative moulding seals the front panels.

Curtis Room Coolers--

(Concluded from Page 1, Column 5)

in color to blend with any color scheme.

Mechanical features include "extra large coils with more fins per inch to increase cooling and dehumdifying capacity," according to the company. The unit also has a hydrolene base to eliminate sweating and a Fiberglas-insulated bulkhead for quiet operation. It is designed for "quick installation," the company said.

Other features include directional louvers, 1-in. Fiberglas filter, and rustproof exterior. The unit is designed so that draperies do not interfere with operation.

MANITOWOC'S new 2-Zone freezer-refrigerator combination features a 10-cu. ft. self-defrosting refrigerator above, an 11½-cu. ft. freezer below.

Manitowoc--

(Concluded from Page 1, Column 2)

ment, the company said, "all the often-used refrigerator foods are waist-high and above for easy fingertip selection."

Important feature of the refrigerator, according to the company, "is its ultra-high humidity, maintained at all times, keeping foods fresher longer, even when unwrapped." Five different shelf heights, including tall bottle space, are provided in this compartment.

Other features include a divided vegetable drawer, "Butter Caddy" and door rack, automatic inside light, and removable ribbed glass shelves.

The freezer has a separate thermostat so that freezer temperatures may be regulated from 0° F. for constant storage, down to -20° F. for quick-freezing. There are freezing coils on all five walls of the freezer section, and "Therma-Seal" construction with Fiberglas insulation is used throughout.

The freezer has three shelves, with shelf heights "spaced for maximum loading of both commercially packed and home packed foods." Five ice trays with "Snap-free" sections are placed at the top of the freezer section. An automobile-type lock in the latch provides protection from accidental freezer opening.

"Frost-Mint" color styling has been used throughout both compartments on the breaker strip and in ribbed plate glass refrigerator shelves. Exterior is heavy steel with baked-on enamel and chrome trim.

Both freezer and refrigerator operate as complete refrigeration systems, responding individually to thermostats in the respective compartments, though served by a single ¼-hp. hermetically-sealed compressor. No special outlets are required.

Outside dimensions of the 2-Zone are 67¾ in. high, 36 in. wide, and 29¾ in. deep. Double doors may be removed, making front-to-back measurement 26⅜ for easy handling through exceptionally narrow halls and doorways.

The 2-Zone carries a 5-year warranty on the hermetically sealed compressor unit and 1-year on parts.

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A FOREMOST NAME IN THE MANUFACTURE OF DIVERSIFIED WIRE PRODUCTS OF SUPERIOR QUALITY
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ORIGINATORS OF WIRE & TUBE CONDENSERS FOR STATIC AND FORCED CONVECTION, AND OF WIRE & TUBE FREEZER SHELVES
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WALL WIRE PRODUCTS CO.
PLYMOUTH, MICHIGAN
* *

Death Traps--

(Concluded from Page 1, Column 3)

Miami Beach does not have a "death trap" ordinance, but the zoning ordinance requires that nothing be stored in a rear yard. It was for violation of this law that Jackson was hailed into court.

Topp said that he had warned Jackson months earlier about the large number of refrigerators he had in his yard. He noted that the yard backed up to residential property and a number of children played in the area.

He said he recognized Jackson's problem in disposing of the boxes and gave him ample time to do so. He also asked Jackson to fasten them closed or remove the doors in the meantime.

Later, a fire department inspector found boxes scattered all over the yard again, with latches and doors intact, Topp said. Jackson was summoned to appear in court.

1st CHOICE for HOSPITALS SCHOOLS CAFETERIAS and INSTITUTIONS
THE MARK OF A GOOD CASE — THE P-H LINE — ESTABLISHED 1898

Since its organization more than 50 years ago, the Puffer-Hubbard Manufacturing Company has been dedicated to but a single purpose — to build the finest quality commercial refrigerators it is possible to build. How well they have succeeded can best be measured by the fact that year after year more and more hotels, restaurants, food stores, bakeries, schools and institutions of every type are turning to the Puffer-Hubbard line. Owners everywhere will tell you, "In the long run it costs less to own the *very best!*" Regardless of what your refrigeration needs may be, it will be well worth your time to investigate the many advanced and exclusive features that make the Puffer-Hubbard line first choice in the commercial refrigeration field.

Lifetime FEATURES

★ Lifetime Porcelain or Stainless Steel Finish ★ 3" Fiberglass Insulation
★ Patented "Grad-U-Matic" Air Conditioning ★ Sag-Proof Door Construction
★ Tubular Electric-Welded Steel Frame
★ Solid or Triple Thermopane Glass Doors
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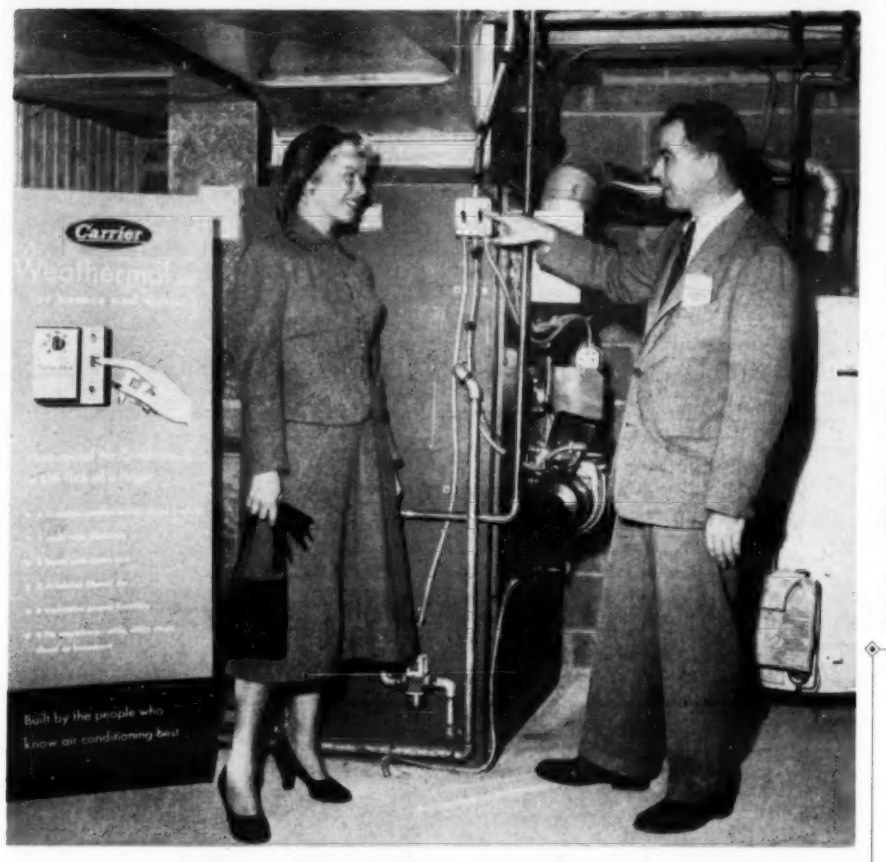
EXPORT OFFICE — Puffer-Hubbard International, 440 Lafayette St., New York City. Cable "Manrefsup"

Thousands Lined Up To See . . .

SOME 4,500 persons inspected Michigan's first home project with year-round air conditioning on the first weekend—Nov. 15—latest such a project was ever opened this far north.



. . . How Year-Round System Worked

UNIT is a 2-ton Carrier "Weathermaker" with oil burner. Here Norman James, Jr. shows Mrs. James manual switches installed for service needs. Thermostat in first floor hallway automatically controls conditioner year-round.

TRENTON, Mich. — Michigan's first building development featuring year-round residential air conditioning has aroused great interest in the Detroit metropolitan area, despite the fact that the project was opened to the public Nov. 15—the beginning of winter.

A total of 38 three-bedroom "Weathermaker" homes, each with a 2-ton year-round Carrier air conditioning system, comprises the Bridge Meadows development in Trenton, one of the "downriver" suburbs of Detroit.

Although a number of individual homes have been air conditioned in the Detroit area, and a few projects in the past year have offered cooling as optional equipment, this is the first to feature air conditioning as an integral part of the house.

$17,250 Price Tag

The homes sell for $17,250, including lots which average 55 by 120 ft. complete with concrete roads, curbs, sidewalks, and cement driveway.

First weekend brought 4,500 people out to go through the model home.

It was fortunate that the weather was bright and reasonably warm for this time of the year and this climate.

But despite a cold rain, more than 1,800 went through the house the second weekend, and some 1,200 ignored snow to investigate year-round residential air conditioning the third weekend.

And at least 15% of the visitors, it is estimated, came from Detroit's east side, a drive of 30 miles or more one way.

Four homes were sold the first day. Follow-up has brought additional sales, and there are hot prospects for the remaining homes in the project, it was announced.

The homes were built by Felsot Building Co., Inc., and are being sold by Century Realty Services.

Active in the design and promotion of the project has been Carrier's Corp.'s Cleveland district office and Temperature Control, Inc., Detroit wholesaler of Carrier and allied products.

Northerners Are Interested

"We've proved that people are definitely interested in year-round air conditioning," comments Carl Beltz, who heads up the Temperature Control operations.

(Many in the air conditioning business hereabouts have expressed doubt at times as to how much genuine interest the average homeowner this far north would have in residential cooling.)

"I'd estimate that 75% of the people who came out were interested in the Weathermaker. We got lead after lead for residential air conditioning," Beltz says.

"Quite a number of people didn't even bother to go upstairs to look at the house proper. They came straight in the grade door and down to the basement to look at the air conditioner."

The model used here is a 38C-2, a 2-hp. oil-fired unit.

People Asked Lots of Questions

"Many people were asking technical questions on air conditioning," Beltz said, "much to my surprise. They wanted to know, for example, the degree differential, exactly how the unit removed humidity, and the operating cost.

"Obviously these people have been reading many articles about air conditioning in newspapers and magazines and are extremely interested in it..

"Many women at the home were impressed by the fact that with air conditioning they could keep doors and windows closed all the time to keep out dirt and noise. I heard several remark with evident pleasure that they could now save money on porch furniture—either by not buying any or moving what they already owned into the recreation room."

The unit incorporates a self-charging type electrostatic air filter.

What To Do with Used Home?

In reviewing the actual selling of the homes in this project, Beltz indicated that the Detroit experience does underline the problem facing home builders generally—how can the prospect for a new home dispose of his present "used" house in a market that continues its downward trend.

"To me, however, this only points up the very definitely increasing need and desire for residential air conditioning in both new and existing homes," Beltz believes.

AIR CONDITIONING (Year-Round Residential)

Pasadena, Tex. Begins 67-Home Project--All Air Conditioned

PASADENA, Tex.—The Berkshire Village Corp. has begun construction of 67 fully air conditioned homes in the $12,500 price class.

The firm will construct 130 homes in all within the next 10 months. "It is possible that practically all of these will be constructed with air conditioning," said T. E. Braswell, president. "It all depends on how these 67 we are now starting are accepted by the public. With the smaller air conditioning units now available, the cost of operation is low.

"I think the day is here for the low-priced air conditioned home."

It's Cool In The Woods

HOUSTON, Texas — Twenty or more air conditioned homes will be completed in the Spring Branch Woods addition, just opened by developers, within the next few weeks.

Among the builders who are equipping their new homes with central air conditioning are A. J. Whipple, D. B. Gordon, and C. E. Irwin. Carrier air conditioning is being used in these installations.

YEAR-ROUND
Air Conditioning
with One Central Unit
TYPHOON
MODEL S-W
ONLY
Heating-Cooling Unit
WITH
ONE-BUTTON CONTROL
TYPHOON AIR CONDITIONING CO., INC.
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The market's everywhere, ready and waiting, and ever-growing for these new International Air Conditioner Covers. Every air conditioner needs one — no owner can do without it — protects against rain, snow, rust, drafts and dirt—saves costly servicing and repairs. Fits all air conditioners (21 custom made models to choose from). Attaches in a jiffy — fits perfectly. Waterproof, flame-resistant, self-extinguishing. Neutral tone durably stitched with black plastic binding and reinforced with stitched-in metal stays.
Individually boxed in envelope type package. To retail from $6.45 to $8.45.
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WHOLESALER
ask for the PENN Complete Line of Cooling Controls
Whatever the control job . . . refrigeration or air conditioning . . . your wholesaler has a PENN precision-built automatic control that will do the job better . . . and make more money for you.
Costly service call-backs stop . . . and customers "talk you up" because of efficient on-the-job performance by PENN Controls. Quality . . . long years of service . . . customer satisfaction . . . are a PENN tradition.
In the PENN complete line there is a type to fit your needs exactly. Investigate the profit . . . get your free copy of PENN's Condensed Catalog and price list. Ask your Wholesaler or write Penn Controls, Inc., Goshen, Indiana. Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.
Series 246 Water Valves are zoned to keep water out of sliding parts . . . are built in threaded and flanged styles for all refrigerants and in sizes from ⅜" to 2½".
Penn Series 325 Time-Pressure Defroster automatically varies the defrost period to satisfy load conditions . . . eliminates seasonal adjustments . . . avoids unnecessary shut-down time.
Series 275 Oil Protection Control with built-in Time-Delay Switch for use on all pressure-lubricated refrigeration compressors.
Penn Series 270 temperature and pressure controls have direct reading calibrated scale which shows both cut-in and cut-out points.
PENN
AUTOMATIC CONTROLS
Remember . . . there is a difference in controls
FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

They'll Do It Every Time . . . . By Jimmy Hatlo

WHEN THE SALESMAN TAKES A CUSTOMER TO LUNCH, SAID CUSTOMER EATS LIKE HE MAY NEVER EAT AGAIN...
LOOK HERE, SAVATTE! THESE SWINDLE SHEETS FOR TAKING BILKER TO LUNCH--NOBODY EATS $12 WORTH OF LUNCH! I DON'T CARE IF HE IS OUR BEST CUSTOMER!!
B-BUT HE EATS LIKE A HORSE AND DRINKS LIKE A SPONGE! I SWEAR EVERY ITEM IS ABSOLUTELY HONEST!!
LUNCH $12.50
THEN SUSPICIOUS BOSS-O PLAYS HOST TO THE SAME CLIENT, AND THE GUY EATS LIKE A BIRD....
HOW ABOUT A LITTLE LIBATION, BILKER--AND WHAT LOOKS GOOD TO YOU ON THE MENU?
NO, THANKS--NOTHING TO DRINK--H'MMM-- LET'S SEE--UH--I'LL JUST HAVE A CREAM CHEESE SANDWICH AND COFFEE...
THANX AND A TIP OF THE HATLO HAT TO CRES KITE, CHICAGO, ILL.
JIMMY HATLO
11-7
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If water is a problem,
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UNICON by Kramer,
the air-cooled condenser that DOES NOT USE WATER!
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are available for ¾ to 100 H.P.
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"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

If You're Hurting, Please Don't Blame A 'Recession'

AMERICAN consumers, according to the usually reliable Federal Reserve Board, can boast a collective net worth of $640 billion.

Terrific, eh?

And the U. S. Department of Commerce relays the information that family incomes this year will register an all-time high of $284 billion.

Even more terrific, huh?

In addition, savings by individuals are running close to $16 billion a year currently.

Apparently consumers have plenty to spend.

Yet, they are saving so much that one wonders what salesmen are doing these days.

THE MONEY IS THERE.

Consumers in the large have more of that green stuff to spend than they need for just necessities.

Thereupon, if a recession of any kind DOES occur, or if business seems to slow up in certain lines, perhaps it's OUR fault.

To be sure:

Not only do we have to compete with other industries, products, and firms for the spendable dollar. We have to compete with the consumer's desire to save too much.

However, we *can* snare our share of that unprecedentedly large pile of money. How? By selling harder and advertising more.

Trite but true.

We've heard that "line" before, haven't we?

Simple, but it works.

Well, why don't we roll up our sleeves?

Small Business And The Anti-trust Laws

WISELY our forefathers passed anti-trust laws to protect small enterprises—and consumers—from monopolies which could control sources of raw materials and supplies.

These anti-trust laws do not apply to Labor.

Any union leader can affront a small businessman and say, in substance:

"You cannot bargain with your own employes privately. WE will set the pattern for every similar firm in the city, or in your industry all over the country. You must pay what we say, do what we tell you to do. And if you don't, we can put you out of business by denying you the help you need."

Our legal structure sanctions this private monopoly held by union bosses.

Evermore and endlessly Washington brays that it wants to help small business.

But who, among our lawmakers, is trying to amend the Taft-Hartley Act to end those monopolistic union practices which put small business behind the 8-ball?

Must collective bargaining be synonymous with industry-wide bargaining?

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

Having been burglarized twice in one year, a nervous woman persuaded her husband to sell their house and move into an apartment. Near Christmas, while tidying her small daughter's room, she found an unfinished letter on the child's desk.

"Dear Santa Claus," she read, "we have not got a fireplace or a chimney any more, so after my mother and my father are asleep I will unlock the back door and leave it open for you. Your friend, Alice."

"What I want for Christmas," a contractor's son announced early in December, "is a baby sister."

"That would be nice," smiled his father, "but I'm afraid we don't have time. You should have told me earlier."

"But, Daddy, you could put more men on the job and rush it through."

"This doll," promoted a toy department clerk, "is almost human. When you lay her down she closes her eyes and goes to sleep. Just like a real little girl!"

"You can't be a mother," sighed the customer. "Alive little girls don't go to sleep when you lay them down."

"What do you want for Christmas?" teased Uncle Phil. "An electric train?"

"Naw."

"A catcher's mitt?"

"Naw."

"Look, boy, I need some sort of hint."

"Ah-h-h," snarled Joey, "I don't want nuttin' fer Xmas. I'd rather be bad."

Nagging Wife presented Mr. Henpeck with two neckties Christmas Eve. They were bloody horrors.

Automatically trying to maintain peace in their home, he donned the least obnoxious throatpiece Christmas morning.

"Hah!" she shrewed. "The other tie isn't good enough for you, hah?"

Scuzit, Please

Upon rereading these alleged jokes, as "Dope" goes to press, we realize that they are hardly in keeping with our definition of the Christmas Spirit ("love").

Perhaps that's because children, and some other people, often get *too* much while *giving* too little at Christmastide.

Love is *giving*, in large part. Inasmuch as most readers of this column will be on the "giving end" of Christmas transactions, we know they'll be mighty happy this week.

God bless you all!

Christmas In a Pot

Following is an editorial from the *Grosse Pointe News*. It's a good nightcap for this Christmas column.

Christmas, or at least the Christmas spirit, came early this year to the office in which we work. We discovered it in a plain mason jar, with a jagged slot jabbed in the top and an odd assortment of coins nestling within. It was resting on a file cabinet in the business department and it carried a conspicuous label marked "Spout Pot."

It caught our eye as we handed a sheaf of approved bills to the bookkeeper, and we remarked: "So that's how the coffee funds are handled?"

Some barely detectable evasiveness in the smile which greeted our query whetted our curiosity. The ever-present pot of hot coffee is every bit as important to a newpaper office as it is to the running of the United States Navy. Each of us contributes regularly to the end that the supply shall never be diminished, nor the brewing apparatus ever caught out of order.

But it seems this particular jar had no connection whatever with the coffee fund. This "spout" had reference to vituperatives, or mere unkindness which might be emitted from the mouths of the office personnel in speaking of any one of their fellow workers.

Those who have worked long in groups become accustomed to the petty jealousies or earned hatreds which are built up, or catch fire spontaneously among those thrown constantly together under the stress of business pressure.

Certainly our office had not always been free of such friction, but it never bothered us much. Outside of a handful of us ancients who had come to accept this sort of thing as a matter of course, the staff is comprised of comparative youngsters, with a large turnover. While lacking in business experience and its cumulative callousness, these neophytes stick to the annoying pattern of falling in love, getting married, and having babies. It generally doesn't take long until one or the other extracts them from our midst.

Then in comes a replacement, a little younger than the predecessor, a little more in need of training, and a little more susceptible to the coldness and rigors of commonly accepted business contacts. When we think of the hours we have spent, more or less patiently, hearing out the tearful wails of tender young souls who firmly believed they couldn't stand up under the inhuman nastiness of one of their fellow workers!

Now comes the "Spout Pot," greatest boon most sought-after heaven-on-earth to an employer. Every time someone in the office says anything derogatory about anyone else in the office, it costs 10 cents.

It is the nicest Christmas present we can imagine. And we are particularly grateful (for keeping old-time thoughts alive) to the girl who is wont to boil up unusually high on a Tuesday when the weekly issue is "put to bed." She has contracted a delightful habit of approaching the "Spout Pot" with determination on these mornings and announcing. "Here's 50 cents, and that has to cover all of today."

Out of Our Mailbag

Dan H. Willis Co.
Akron, Ohio

Editor:

Your editorial in the Nov. 9 issue on Imperturbability was very interesting.

The writer made up a page full of positive emotions.

Thought you might be interested.

DAN H. WILLIS

You Are the Master of Your Thoughts

Thoughts and Emotions above the line are Life. They generate Energy, Harmony, and Health.

Thoughts and Emotions below the line are given you for Emergencies. Recognize and release them promptly. Hold to any one and it becomes a habit blocking out the energizing above the line thought and lowering your vitality.

Keep your Thoughts above the line!

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Apathy	Despair	Dejection	Anger
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Deceit	Hypocrisy	Revenge	Malice
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Cowardice	Pessimism	Remorse	Sad
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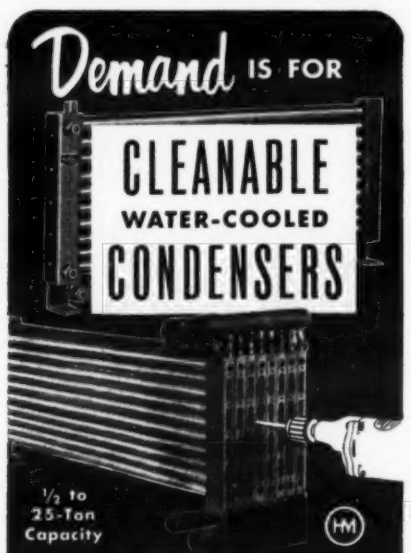

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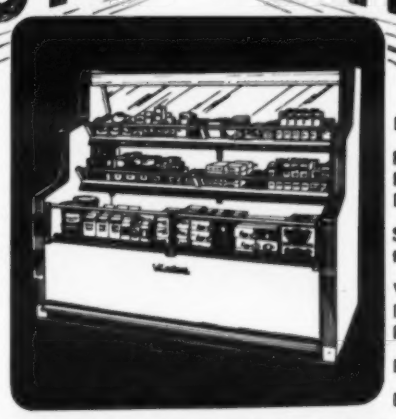

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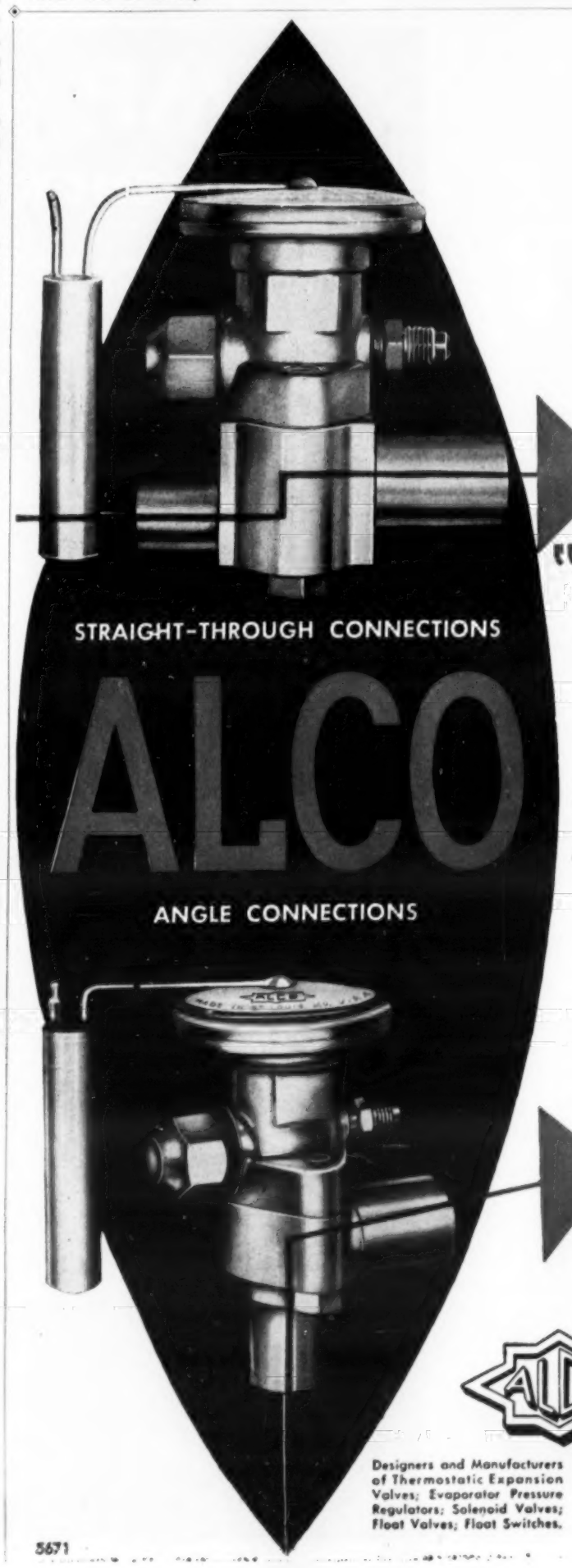

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Fan Motors for Room Coolers

(Part 2) *Performance Characteristics of Shaded Pole Motors Used In Room Air Conditioners Described by Morgan of Fedders*

By R. W. Morgan, Director of Engineering, Fedders-Quigan Corp.

What air conditioning engineers would like to see in fan motor designs and some of the problems encountered with present designs outlined in a paper by R. W. Morgan, director of engineers for Fedders-Quigan Corp.

Under the title "The Application of Shaded Pole Motors to Room Air Conditioners," it was presented by Morgan at the Conference on Application of Motors to Air Moving Equipment held in Fort Wayne, Ind. by the Fort Wayne section and the Committee on Rotating Machinery of the American Institute of Electrical Engineers. This is Part 2 of Morgan's paper; final instalment will appear in a future issue.

Rotors are usually precision die cast and dynamically balanced within ± .02 in. oz. The alloy is changed depending upon the torque characteristics. Some rotors are cast with an integral fan. This feature increases the motor length. Shafts come in sizes of ¼, 5/16, ⅜, 7/16, and ½ in. This lack of standardization creates a problem in lining up multiple sources due to different fan hubs.

Speed Torque Curves

Perhaps the best method of indicating the performance requirements of shaded pole motors for room air conditioners is by means of speed-torque curves. Such a curve is shown in Fig. 3. This curve is plotted from data taken on an eddy current dynamometer. This motor is a 1/30-hp. two-speed 6-pole fan motor for a ½-hp. room air conditioner. R.p.m. is plotted against torque in ounce inches for both high and low speed at 115 volts and at 103.5 volts. The condenser fan and slinger ring torque requirements are shown also.

It is necessary to test at low voltage since in many cases due to voltage drop in the branch circuit under 10-15 amps current draw, the voltage at the prongs of the attachment plug drops 10% or more. Since shaded pole motors are sensitive to voltage, the change in speed must be recognized in the design. In addition to this data, the lowest voltage at which the fan motor will start is recorded. It is customary to specify starts under load at 80 volts or lower.

The complete performance characteristics at high speed are shown in Fig. 4. It will be noted that efficiency, watts, r.p.m., millibrake horsepower, and amperes are plotted against torque. The solid vertical line indicates operating point at 115 volts, the dotted line at 103.5 volts It should be noted that the r.p.m. at 115 volts is 1,040 and at 103.5 volts, 1,020; a difference of 20 r.p.m. Depending upon the motor winding design, this difference could be considerably more.

Low Speed Performance

The low speed performance is shown in Fig. 5 plotted on the same scale. Comparing the r.p.m. at the operating points with the high speed values, it is seen that at low speed 115 volts the r.p.m. is 930, while the 103.5 volt speed is 800, a difference of 130 r.p.m. This compares with 20 r.p.m. at high speed. If a third speed is incorporated, this problem is even greater. It can readily be seen this variation must be recognized in checking air conditioner performance for sweat conditions, condensate disposal, and frosting due to the fall off in air volume.

It is not sufficient to check a fan motor at rated r.p.m. since production variations are wide. For this reason it is necessary to determine the effect of these variations so that the maximum and minimum values can be checked. It is customary for us to plot a band from data on a number of motors and fans rather than a single line to determine these maximum and minimum values. Production variations are caused by:

1. Rotor alloy resistance.
2. Magnetic qualities of iron.
3. Insulation of stator laminations.
4. Bearing friction.
5. Magnetic gap.
6. Magnetic wedges.
7. Fan pitch.

If high quality units are the manufacturer's goal, fan motors should be 100% inspected for speed torque characteristics to assure motors are within limits checked in design.

An important characteristic of the fan motor is its freedom from noise. Noise in shaded pole motors can come from magnetic hum which is most annoying if amplified by the fan blade or some other part of the air conditioner. A comparatively recent innovation is to use rubber fan hubs to isolate the blade from the motor shaft. This is fairly effective, but tends to increase the bearing temperature since the heat path from the bearing to the blades is broken. Another noise source comes from the bump against the thrust surface. This can be minimized by proper lo-

(Continued on next page)

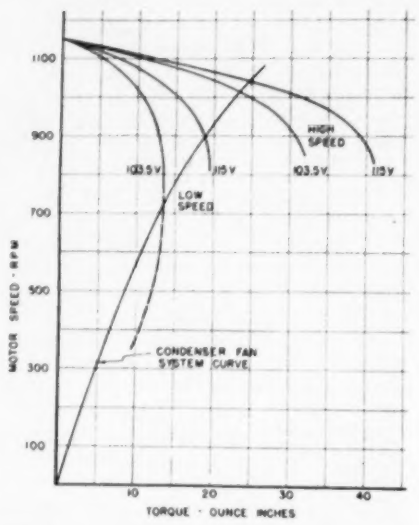

FIG. 3 shows typical speed vs. torque curves of a 1/30-hp., 6-pole, two-speed shaded pole motor.

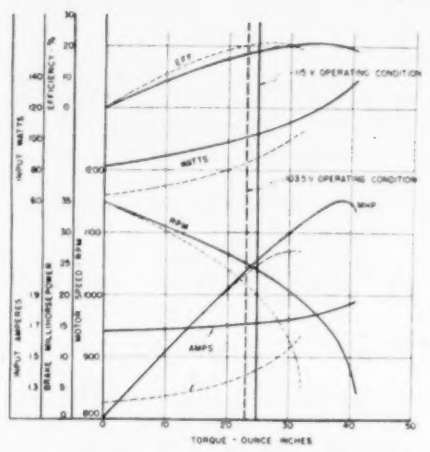

FIG. 4 represents typical motor calibration curves for a 1/30-hp., 6-pole, two-speed, shaded pole motor operating on the high speed winding. Solid line represents 115 volts, dotted line, 103.5 volts.

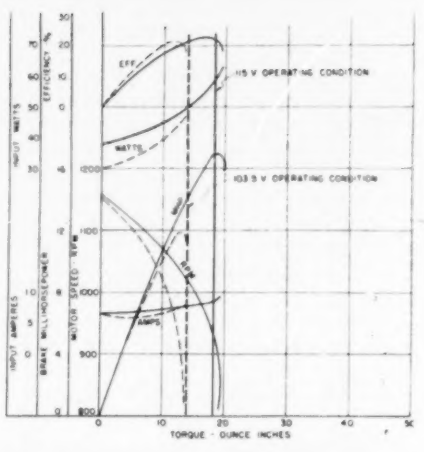

FIG. 5 shows curves for the same motor as in Fig. 4, but operating on the low speed winding.

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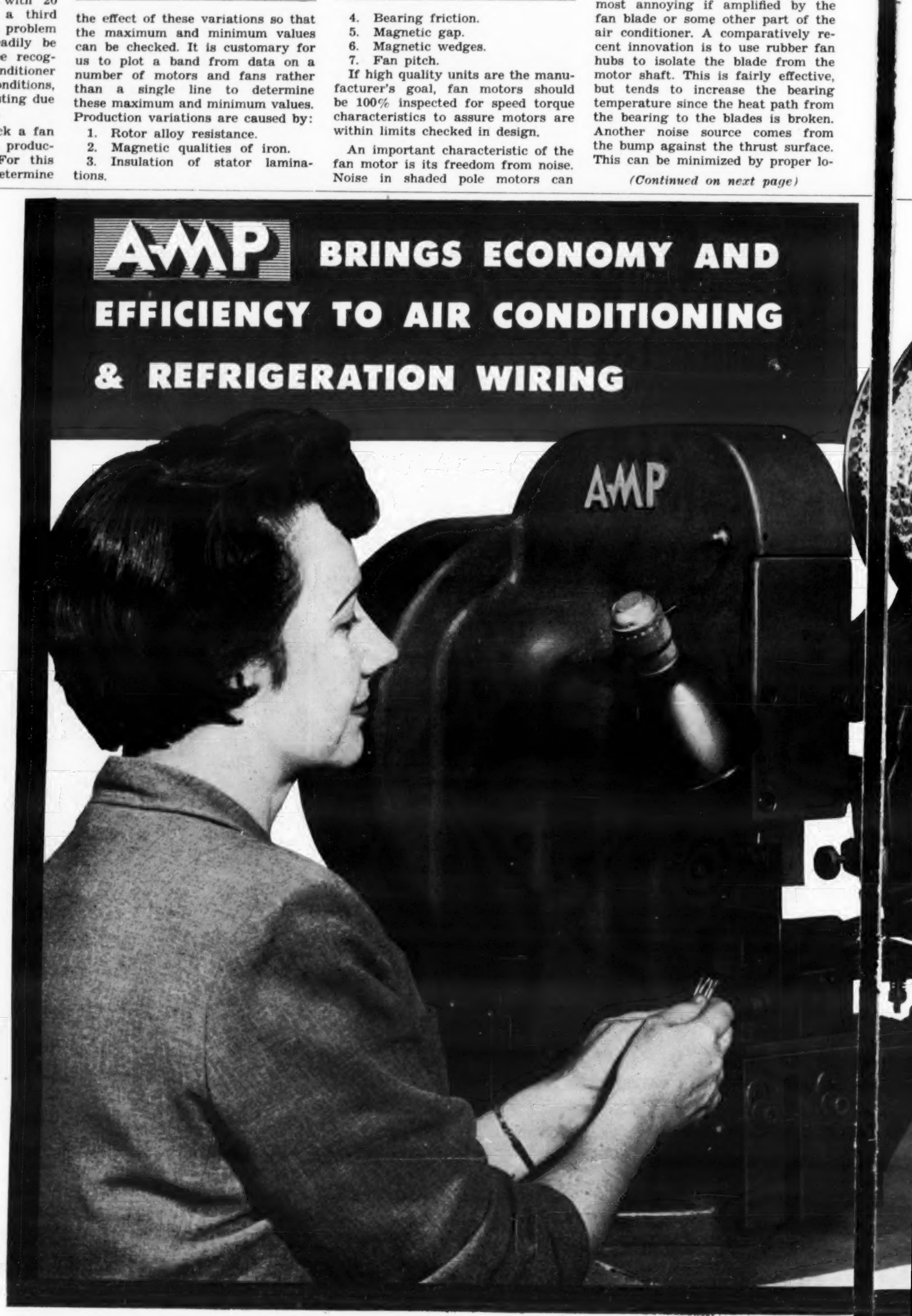


Fan Motors for Room Coolers--

(Continued from preceding page)

cation of rotor with respect to the stator and also by proper design of the thrust surfaces.

The popularity of the 6-pole fan motor, of course, is due to the ability to obtain a lower noise level by operating the fan at a lower tip speed. A larger diameter fan is required than would be used with a 4-pole motor.

One of the most difficult characteristics of a shaded pole motor to evaluate is its life. This characteristic is a very important one, too, since it is doubtful whether the fan motor, unless properly oiled, will operate the life of the warranty of the hermetic refrigeration system. This also may even be true for the so-called permanently oiled types since life tests under room air conditioner conditions such as exist in Texas and other states, have not been run by any motor manufacturer, to the best of the writer's knowledge. It would seem that if we are to market an air conditioner with an honest five-year warranty, we must expect to get five years of operation from the fan motors even though they are not oiled.

It is almost certain that the salesman on the appliance dealer's floor studiously avoids telling the customer that the five-year warranty does not include the fan motors. If after a year or two the customer has to replace the motor at a cost of $25 to $35, he will not think kindly of the dealer, salesman, or the air conditioner. He usually has not experienced any such early replacement on his refrigerator or home freezer and for that reason might question the design.

In some locations replacing the fan motor is a major operation because of rusted attaching bolts, fan hubs and shafts, shrouds, etc. An examination of a room air conditioner chassis after two or three years operation in the South is most enlightening.

Why Are Air Conditioner Applications More Difficult

The question naturally comes up as to why the air conditioner application is any worse than the forced draft refrigerator or home freezer application. There are many reasons why this is so.

In the air conditioner, the fan motor runs continuously and does not cycle particularly in hot weather in ambient temperatures as high as 135° F. Not only is the temperature high, but the air is usually saturated with moisture due to the action of the slinger ring. Also, due to the 6-pole design, the speed is lower and the ventilation over the motor is poorer. Also due to the compact design, ventilation of the motor is impaired. Furthermore, the motors are loaded up to the maximum in the interest of cost and physical size.

All of these factors, plus adding the rubber fan hub impairing heat dissipation from the bearings, result in high bearing temperatures which is indicative of short life, according to the manufacturers.

If an oiled type motor is employed, the inconvenience in oiling at the proper time is considerable since in many designs it is necessary to remove the unit from the window. There is also danger of using an inferior grade of oil, accelerating gumming of the bearings. If a series of units are being maintained in an office building or an apartment house, the cost of periodic oiling is considerable.

Service Problems Caused By Fan Motors

The following letter from a purchaser of 23 room air conditioners pointing out the service problem caused by fan motors, illustrates this problem. These units have been operating for two seasons:

"The primary difficulty is with lubrication of the bearings on the condenser fan motors which are equipped with oil wells. We find these motors are operating at a high temperature and when they become overheated they will stall, cool off, and restart. Just before stalling a terrific vibration is set up.

"The room air conditioner installers did not tell us to oil the condenser fan motors every 90 days and left us with the impression that servicing once each year was more than ample. In the past several months six failures have occured, rendering conditioners out of service weeks at a time and always when the temperature was at the highest point.

Replacing Motors Is Expensive Job

"Replacing motors is an expensive job as it required several men to remove them from their mountings on the window ledge and in most cases on the second and third floor of our building and not accessible in any other manner.

"A regular plan has been inaugurated calling for servicing every 90 days. This is an expensive procedure requiring two skilled men to remove the unit, which means in service charges about $75 every three months. It appears to us that a packaged air conditioner should be manufactured and marketed with hermetically sealed motors similar in design to the household refrigerator that require no care whatsoever."

If permanently oiled motors are employed, the original motor cost is higher. The manufacturer in general does not warrant the motor for more than one year. If the motor fails, there is no possibility of adding oil in some designs, making it necessary to replace it.

In order to evaluate motor life at similated maximum operating conditions, our company built up a special life testing room. This room was designed after checking with all major shaded pole motor manufacturers as to their approach on life testing. We found life tests in many cases were not run at all and in many cases motors were run at room ambients lower than our requirements.

We finally decided to operate the room at 130° F. cycling the motors three hours running and one hour off without attempting to add moisture which may influence results because of corrosion.

Racks were built to hold approximately 60 motors. All motors on test are double shaft extension with propeller type condenser fan on one end and a blower type on the other. All motors on test are equipped with thermocouples in the bearings. All shafts at the bearings were "miked" for possible analysis after failure due to noise. Under each motor a paper towel is placed to detect oil leakage out of the motor body. Paper cones are taped on each shaft to determine signs of leakage out of the bearings. (See Fig. 6.)

Readings of bearing temperature, amps, watts, r.p.m, and running time are recorded every 30 days.

This test room has been in operation since February of 1952. There are on test motors from five motor manufacturers representing nine different designs of both open and totally enclosed types. Oiled type and permanently lubricated type are also represented. Some of these motors have been in operation 10,000 hours. In no case have any of the motors been oiled. In order to get an idea how closely the rack performance checked motors in actual units, three units were also put in the test room.

Results of these tests indicate that every type motor is subject to oil retention problems as indicated by oil-saturated towels. In many cases the oil leakage appeared after only 1,000 to 2,000 hours. This does not indicate a high life expectancy.

(To Be Continued)

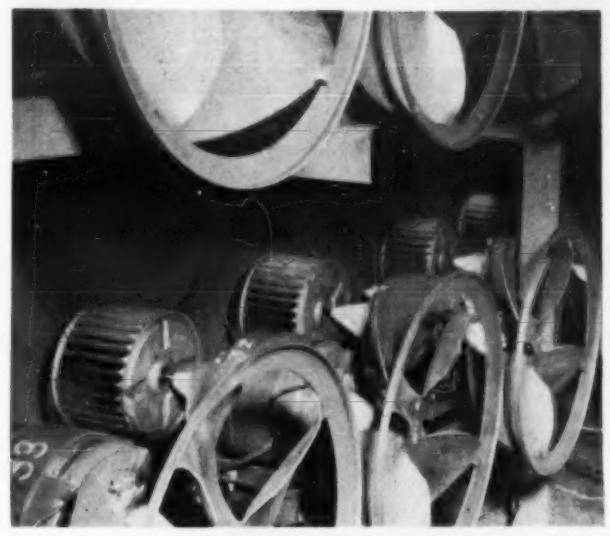
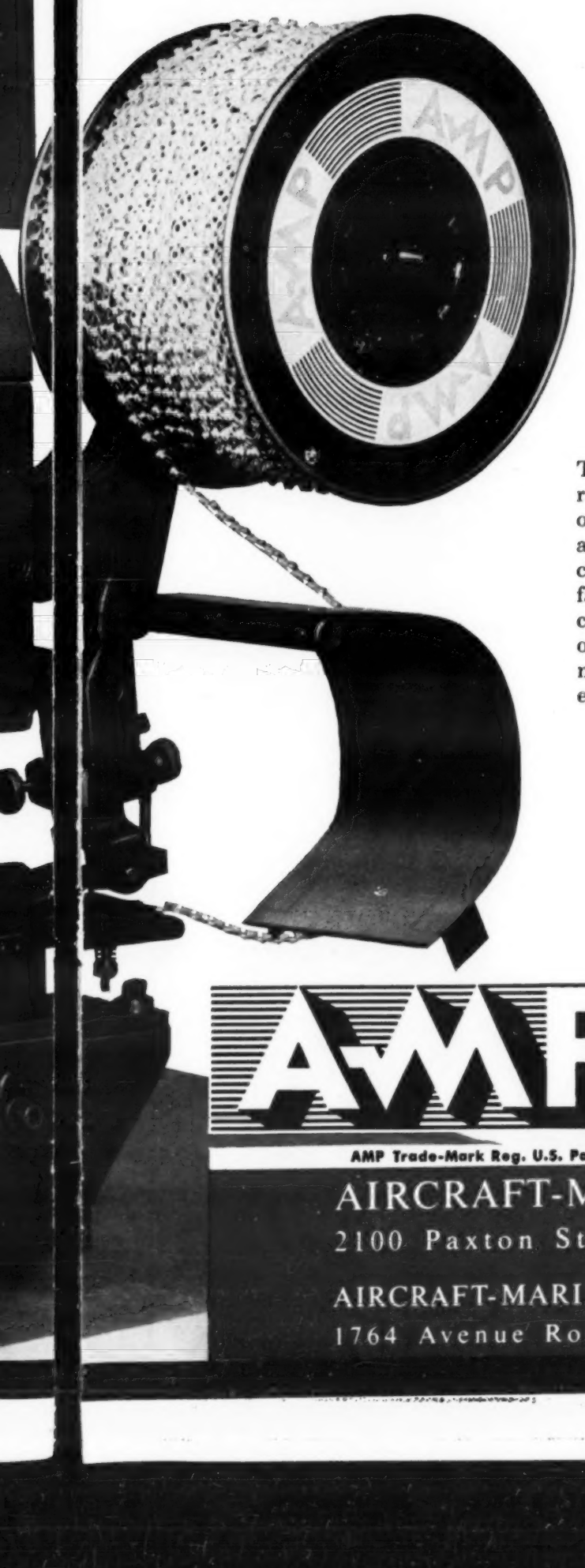


FIG. 6 is test rack at Fedders-Quigan for laboratory test on fan motors.



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What's New

When requesting further information on new products, please use "Information Center" form.

Sherer Dairy Case Gets Aluminum Panel, Molding

——KEY NO. C-1230——

MARSHALL, Mich.—An improved model 3100 self-serve dairy display case has been announced to its distributors and dealers by Sherer-Gillett Co.

The new Sherer model "has a distinctively modernized appearance through the addition of an extruded aluminum panel on the front of the case and matching price-tag molding," the company said.

The model 3100 continues to feature Sherer's patented RA-15 refrigeration system which uses recirculated air to cut down on running time and operating cost of the condensing unit, according to the manufacturer.

The two-deck model makes possible the mass display of a larger variety of dairy products, it was pointed out.

Literature is available.

Stop service calls . . . keep out rust and sludge . . . open new doors to sales acceptance!—with coolers, ice-makers, sell "Taste-Master"!—checks chlorine, traps sediment; promotes service-free satisfaction with all water processing appliances. Write—

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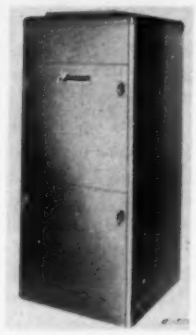
Air Conditioning Added To Janitrol Heating Line

——KEY NO. C-1231——

TOLEDO—A new summer air conditioner, completing the line of home comfort equipment manufactured by Janitrol Div., is announced by Surface Combustion Corp.



Shelter, consumer, and trade magazines dated for January will carry the announcement of the compact new unit which, with its matching winter unit, will be known as the "Win-Sum Twins."

The summer air conditioner, model SAC, has been field-tested in performance operation in over 200 installations in the deep south for over a year. Production has now increased on the SAC units and they are available nationally through regular Janitrol dealers.

Sized and finished to match the FES and FEC series winter heating units, the summer air conditioners have several outstanding features, the company says. Their unusually quiet compressor operation has been found especially desirable in residential and certain commercial installations.

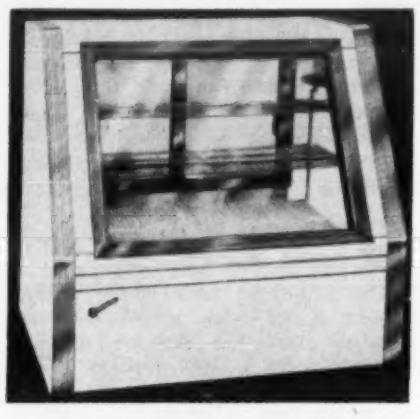
This quietness is further achieved by use of thick glass fiber acoustical and thermal insulation which protects the unit from extreme heat while adding to the sound-deadening features, the company adds.

Three models are offered in the Janitrol summer air conditioner line. The 5-ton unit is a combination of the 2 and 3-ton capacity models. All are housed in the Janitrol blue-gray finish steel casing no larger than the average refrigerator.

Standard equipment includes a arge capacity, resilient-mounted centrifugal fan, driven by a 230-volt, 60-cycle, single phase continuous duty motor. The motor has overload protection. The fan sends cooling air through the same ducts used by the winter air conditioner unit.

The fingertip control damper on the adjoining Win-Sum Twins is interconnected so that the twin unit will not operate when one is already in use.

The hermetically-sealed compressor is driven by a direct connected, integral horsepower motor. The unit has a water-cooled condenser and the refrigerant is controlled by a twin-capillary tube restrictor, the manufacturer states.



Coldin Models Feature Stainless Steel Trim

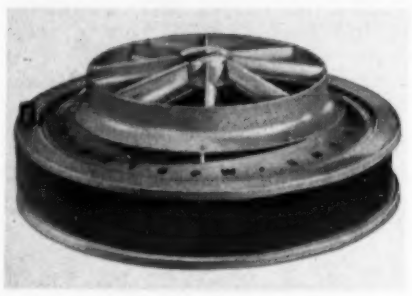
——KEY NO. C-1232——

NEW YORK CITY—Coldin Cabinet Co., Inc. here has introduced its new line of all-porcelain butcher and delicatessen cases.

Outstanding feature of the cases is their newly redesigned stainless steel trim on all the glass display fronts, the company said.

Included in this line are the self-contained 52-in. and 72-in. delicatessen cases, as well as the remodeled counter top show cases.

Light Weight Eases Handling of Unit Heaters



——KEY NO. C-1233——

RACINE, Wis.—A completely new and improved line of vertical delivery unit heaters for steam and hot water has been announced by Modine Mfg. Co. here.

Feature of the new Modine line is the light weight which has been achieved without sacrificing structural strength or durability, the company said. The largest model, having a capacity of 600,500 B.t.u./hr., weighs only 284 lbs. Major advantage of this new light weight is the ease of handling the units during installation and the elimination of structural ceiling supports required for mounting heavier unit heaters.

Departing from a square casing design and flat heating coil, the new Modine verticals feature circular casings and coils.

Performance has been improved by increased heat transfer capacity as related to motor horsepower and by stepped-up air volume and velocity. Outlet air temperatures have been retained in the 110° F.-120° F. range.

The new line is offered in 26 models including 13 for normal steam pressures and 13 with lower outlet temperatures for high pressure steam.

Hotpoint 30-In. Range with Rotisserie

——KEY NO. C-1234——

TOP MODEL of the Hotpoint 30-in. range line is the (RH-1) a lighted pushbutton super deluxe range featuring an automatic rotisserie which electrically barbecue-broils fish, fowl, and meats on a rotating skewer. The rotisserie is built in next to the large oven on the lower left hand side. When the rotisserie is not in use the lower half of the compartment can be used for storage area. The top 30-in. model will have a French fryer as optional.

Bantam Propane Torch Develops 2,300° F. Flame

——KEY NO. C-1235——

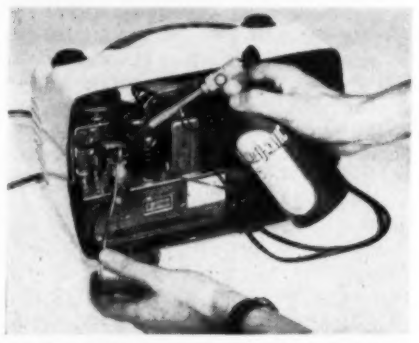
ROCHESTER, N. Y. — A small, compact propane (bottled gas) torch known as the "Bernz-O-Matic Bantam" has been developed by the Otto Bernz Co., Inc., here.

The Bantam propane torch was designed especially to meet the requirements of men who need a small, easy-to-handle torch for fine work, or who use a torch only occasionally.

It is instant-lighting at any temperature down to 30° below zero, and burns steadily in any position. The burner gives a clean, smokeless, pencil-point flame that develops a temperature of 2,300° F.—700° hotter than a gasoline blowtorch.

The Bernz-O-Matic Bantam torch is only 7 in. long, and weighs 19 oz., full. The fuel cylinder is 2¾ in. in diameter. A full cylinder burns about 10 to 12 hours, depending on the size of the flame.

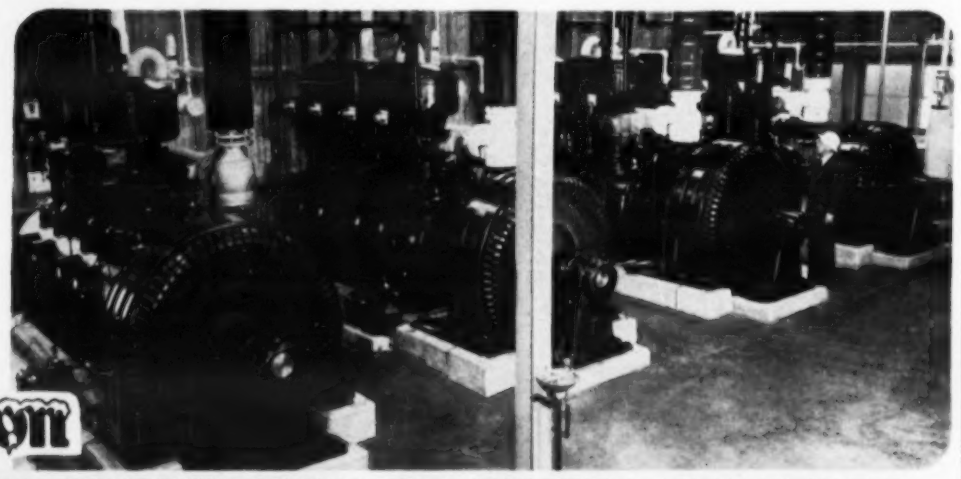
When empty the fuel cylinder is simply unscrewed from the burner



head, without tools, and discarded, being replaced with a new cylinder.

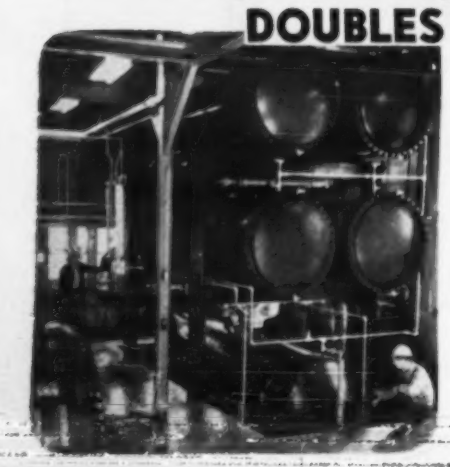
The burner head can be removed from the fuel cylinder at any time that the torch is not in actual use, for convenience in carrying or storage. A self-sealing valve prevents leakage of the propane fuel. The torch and fuel cylinder are non-spillable.

The Bernz-O-Matic Bantam torch retails at $4.95. Extra fuel cylinders sell for $1.49.



FRICK Refrigeration

DOUBLES PRODUCTION OF RUBBER REACTORS



Synthetic rubber plants all over this country, and in Canada, are finding Frick special coils and controls the answer to the problem of cooling reactors. Vertical pipes flooded with ammonia, inside the reactors, replace sluggish brine jackets with trigger-fast cooling. This exclusive Frick development cuts reactor time in half—an unbelievable achievement!

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Photos show Frick Ammonia Compressors, with 600-hp. motors: Frick Condensers, Receivers and Purger at Kentucky Synthetic Rubber Corp., Louisville, Ky.

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OUT OF THIS 9½-ft. by 26-ft. kitchen in the Sportsman Drive-In near Chickamauga Lake, Tenn. comes in one afternoon, meals for 1,200 to 1,500 hungry sportsmen. Seven girls work here during peak loads. Complete installation was made by Lilie & McCall, Tyler distributor in Chattanooga.

Refrigeration Makes It Possible

Sportsmen Flock to Drive-In for Good Food, Quick Service from 9½ by 26-Ft. Kitchen

CHATTANOOGA, Tenn. — Out of this small kitchen—measuring 9½ ft. wide by 26 ft. long—comes food for 1,200 to 1,500 hungry sportsmen who throng the Chicamauga Lake area north of Chattanooga for fishing, riding, swimming, and boating.

It is the hub of the popular Sportsman Drive-In on Highway 58, just a half mile from the lake created by the Chickamauga Dam. The Sportsman has built up its popularity on its barbecue dishes, many of which are prepared on an outdoor grill in the back of the building.

The kitchen is a busy place on Sundays when as many as seven girls are busy preparing food and cleaning equipment. Six curb boys have been known to serve as many as 85 cars crowded around the small building at one time.

In addition to take out orders, the restaurant also has a small rustic dining room that will serve about 25 more people.

Most of the equipment for the kitchen, and for the dishwashing and food storage rooms behind it, was furnished by Lilie & McCall, Chattanooga Tyler distributor.

To meet its needs, the kitchen is equipped with a 34-cu. ft. Tyler reach-in box, a Frigidaire ice cream cabinet, a 4-ft. Sta-Cold salad section, a Thermaduke hot food table, two deep fat fryers and grill, a Frigidaire household refrigerator, a Frigidaire 12-cu. ft. freezer for storing frozen meats, a Dry-Kold beer cooler in the dining room and another in the curb service section, and a 10 by 12-ft. walk-in cooler equipped with Larkin coils.

Lilie & McCall furnished all but the Frigidaire equipment and the Trane 7½-ton air conditioning unit for the dining room.

A special feature of the dining room is a tile wall-mounted drinking fountain, the water coils to which are passed through the walk-in cooler for refrigeration.

The Sportsman Drive-In has been open about five years and is owned by W. Dee Sweeney.

LARKIN MEANS LOW OPERATING COSTS

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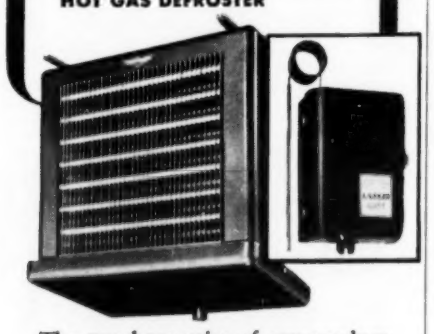

The purchase price of any product is often misleading, for it precludes the cost of long-run operation. All Larkin products are engineered for the lowest possible operating costs, yet they are priced right. That's why Larkin leads the field for long-run, low-cost operation.

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Work Starts on New Bldg. For Richmond-York Corp.

RICHMOND, Va.—G. E. Woody, president of Richmond-York Corp., local air conditioning and commercial refrigeration firm, states that Davis & Spiers, Inc., Richmond contractor, has been awarded a $28,000 contract to build a combination warehouse and office building for Richmond-York.

Woody said the cinder block, brick veneer structure will be located at High Point and Moore Sts., fronting on Moore. It will be a one-story building, 55 by 100 ft., with a modernistic front.

Construction was to begin immediately, with plans calling for the building to be completed by Feb. 15. It will facilitate business operations by giving the company a better location and will permit segregation of office departments which are now operating as one unit, Woody said.

Arnold, Browning Promoted By Saunders, Thermodyne

NEW YORK CITY — At a joint meeting held at the Savoy Plaza hotel, executives of Kerby Saunders, Inc. and The Thermodyne Corp. announced the promotion of A. Vincent Arnold to vice president in charge of sales.

Appointment of William Browning, II as sales manager was also announced. Browning joined Thermodyne in 1947 and until his appointment as sales manager was a salesman for Thermodyne and Kerby Saunders.

Campbell, Geib Named Sales Executives with Sunroc Co.

GLEN RIDDLE, Pa.—Sunroc Co., manufacturer of electric water coolers and milk dispensers, announced recently that Warren B. Campbell has been named sales manager, John C. F. Geib, assistant sales manager and director of sales training, and Charles V. Claybourn, manager of the sales promotion department.

Campbell started with the company immediately after he was discharged from the Navy in 1945. He worked first in the New York office as a salesman, then was promoted to manager of the Rochester office. Since 1949, he has been in the home office sales department.

Geib came to Sunroc as director of sales training in 1952 from Gibson Art Co. Claybourn has served in several capacities in the sales department and most recently was Campbell's assistant.

Commercial Refrigeration

Longer Heart Surgery May Be Possible by 'Refrigerating' Patients To Slow Body Needs

ROCHESTER, N. Y.—"Refrigeration" of patients to permit heart surgery many times as long as was safe up to now was discussed by a Toronto surgeon before the Academy of Medicine.

Dr. W. G. Bigelow, whose research in this field has led him to the point where he used his method successfully on three infants, likened the process to the hibernation of a groundhog who sleeps for months without requiring food.

Similarly, he explained, a patient whose body temperature has been reduced almost 25° F. can get along without oxygen supplied to his system via the blood for as long as 15 or 20 minutes.

With present methods, cutting the flow of blood to vital organs for more than two minutes will result in irreparable deterioration.

The flow of blood, with its vital feeding function to the heart must be stopped to permit operation on that organ, he said. Under present procedure, he added, the surgeon must operate "blind," doing the best he can with his hands or knife in 60 seconds; if he takes longer, the heart likely will not recover.

Dr. Bigelow's method, tried out mainly on animals so far, sharply reduces the demand for oxygen by the heart, brain, and other body organs.

It also reduces blood circulation and the heartbeat is cut to five or six per minute instead of the normal 70 beats. In the process, body temperature is cut from a normal 37° C. to 20—or 68° F.

The effect was achieved, he said, by placing the animal or patient into a double-thickness of rubber. Between the layers a refrigerating fluid is circulated and the patient's temperature and other functions gradually decrease.

The doctor's only human patients in this process so far have been three infants, he said, who had heart conditions precluding their survival under standard procedure. All three survived the "refrigeration" process and surgery, he added, and are doing well now.

The main factor yet to be determined, he said, is the exact tolerance of adults to cold. Infants and animals, he explained, are known to have greater ability to withstand exposure to extreme cold.

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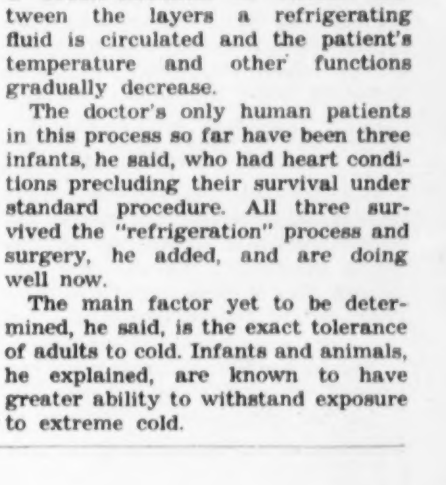

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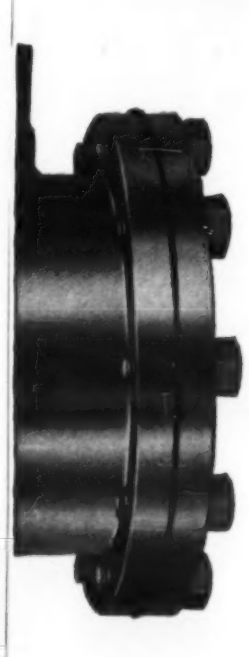

The new Mueller Brass Co. Angle Type Cartridge Drier is designed to meet every operating requirement. Versatility is the outstanding feature of this unit. To secure this versatility, special strainer cartridges were developed to the same dimensions as the standard drier cartridges. These drier and strainer cartridges are completely interchangeable size-for-size. In a system requiring extra strainer capacity, a strainer unit may be placed in the shell ahead of one or more drier cartridges. For added protection and still more filtering area, the new unit has a special "safety screen" at the outlet end.

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- flanged end is positively sealed by neoprene asbestos gasket, with minimum bolt torque.
- cartridges are non-directional . . . filter screen and dispersion plate at each end insures even distribution of high velocity refrigerant for maximum desiccant contact.
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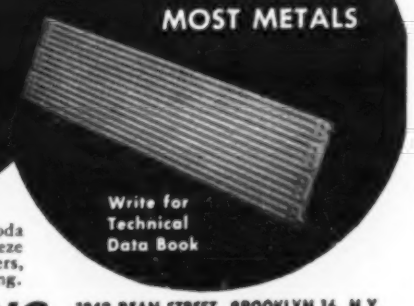

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Refrigeration Problems

and their solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

Thermometers In Refrigeration Service (3)

Thermometers can also be used to determine whether or not the compressor of a water-cooled unit is operating efficiently. This is done by measuring the actual refrigerating capacity developed by the condensing unit and then comparing that capacity with the manufacturers capacity tables for that unit when operating under the same conditions.

MEASURING HEAT REJECTION OF THE CONDENSER

First we determine how much heat the condenser throws off; that is, the amount of heat taken up by the water in passing through the condenser. This is often called the "heat rejection" of the condenser.

(On some types of condensers, especially the double-tube type, some of the heat of the gas leaving the compressor is radiated to the air around the condenser; so measurement of the heat removed by the water only is not quite accurate. The percentage of the total heat that is radiated by such a condenser depends somewhat on how cold the inlet water is and how warm the air is around the condenser, and whether this air is still air or moving air.

The colder the water and the warmer the room, the less will be the air-cooling effect of the water-cooled condenser. Rarely is it as much as 10% of the total, even with the double-tube type of water-cooled condenser, and for the purpose of checking the efficiency of the compressor, the air-cooling effect may be ignored in the case of shell and tube condensers.)

The heat removed by the water passing through a water-cooled condenser depends upon:

1. The temperature rise of the water in passing through the condenser.

2. The rate of water flow; that is, the amount of water passing through the condenser in a given period of time, such as pounds of water per minute.

TAKING WATER TEMPERATURES

The temperature rise is easily determined by an ordinary pocket thermometer, for it is simply the difference in degrees between the inlet and outlet water temperatures. With a pocket thermometer, we take the temperature of the water entering the condenser and substract it from the temperature of the water leaving the condenser.

These temperatures should be taken as accurately as possible. The smaller the temperature rise, the more carefully and accurately the temperatures must be taken. If the temperature rise is only ten degrees, an error of only one-half a degree in taking the temperature of either the inlet or outlet water will result in an error of 5% in determining the heat rejection of the condenser. The same error of one degree of either the inlet or outlet water will result in an error of only 2½% if the temperature rise of the water is 20°.

It is better to use the same thermometer to take the temperature of the inlet and outlet water, for even if the thermometer is inaccurate, the *difference* will be the same as if the thermometer is absolutely accurate. If two thermometers are used, they should both be accurate; or if inaccurate, they should both be off the same amount and in the same direction, so that the *difference* is still correct.

The temperatures of the water should be taken as near as possible to the inlet and outlet of the condenser. It would be helpful if there were a "thermometer well" at the inlet. This is rarely true, however, and since the water must be flowing through the condenser, the inlet temperature of the water may be taken as that of the water flowing from a faucet near the inlet of the condenser.

However, the outlet of the condenser should be disconnected from the drain line if the latter is long. If it is quite short, say two or three feet, the outlet water temperature may be taken at the outlet of the drain line, thus making it unnecessary to disconnect the drain line from the condenser.

WEIGHT OF WATER IN POUNDS PER MINUTE

The amount of water can be measured by allowing the outlet water to flow into a container such as a bottle or bucket. The size of the container will depend upon the size of the condensing unit and the temperature rise in degrees.

For small units, a quart milk bottle may be large enough, especially if the temperature rise is relatively great—say 25 or 30 degrees. For larger units, the container must, of course, be larger, especially if the temperature rise of the water is relatively small—say 10 or 12 degrees, for a small temperature rise requires a greater water flow for the same amount of heat taken on by the water.

A good rule is to use a container that will hold at least as much water as flows from the condenser in 15 seconds—a quarter of a minute. The longer the time, the greater will be the accuracy, for a small error of one half pound in 50 pounds of water will result in a smaller percent of error in the result than an error of one half pound in 20 pounds of water.

The container should first be weighed empty, and then at the end of fifteen or thirty seconds, a minute or for whatever length of time the test continues.

PRESSURES SHOULD BE CONSTANT

Insofar as possible, the test should be taken (the temperatures read and the water measured) during a period while the suction and head pressures are "in equilibrium"; that is, while they remain constant for several minutes—the longer the better.

Capacities change as either suction or head pressures change; so if either the suction or head pressures rise or fall during the period of test, the results will not be accurate.

If the system has a quick pull-down, it will be difficult to check the capacity by this method. Air conditioning systems whose suction and discharge pressures stay constant for long periods can be tested quite accurately.

TEMPERATURE RISE TIMES POUNDS GIVES B.T.U. OF HEAT

After we have determined the temperature rise and the rate of water flow in *pounds* of water per minute, we simply multiply the two together, which gives us the B.t.u. per minute that the water has taken from the water, for a pound of water in rising one degree F. has absorbed one B.t.u.

For example: we are testing a 3-hp. water-cooled unit on a small store cooler, having a suction pressure of 42 p.s.i.g. and a head pressure of 100 p.s.i.g. ("F-12"). The temperature of the inlet water is 63° F. and of the outlet water is 82° F., so the temperature rise is 19° F. We caught 17¼ lbs of water in exactly 30 seconds, which is equivalent to 34½ lbs per minute. Thus the B.t.u. absorbed by the water is at the rate of 655 B.t.u. per minute (34½ x 19) or 39,300 B.t.u. per hour (655 x 60).

SELECTING THE HEAT REJECTION FACTOR

This is the total heat rejected by the condenser. What part of it came from the suction gas and thus represents the capacity of the compressor; and how much of it is due to the heat of compression?

This could be determined by using the saturated and superheated heat contents of the refrigerant as determined from the refrigerant tables or a Mollier diagram. Accurate results could be obtained in this manner, but it is a bit complicated for ordinary field use.

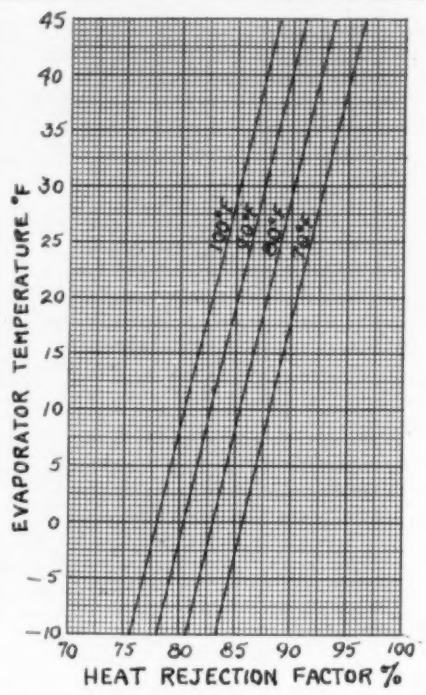

FIG. 4—Heat Rejection Factors—Percentages of total condenser heat that represents refrigeration capacity of the Condensing unit.

An easier and fairly accurate way is by using a percentage known as a Heat Rejection Factor, taken from curves worked out by the author, based on the heat values of the refrigerant as referred to above. These are for "Freon-12" but can also be used for "Freon-22" and methyl chloride with sufficient accuracy.

The head pressure is 100 p.s.i.g., which corresponds to a condensing temperature of 90° F. (from the refrigerant tables at saturation). The suction pressure is 42 p.s.i.g., which corresponds to an evaporator temperature of 45° F.

In Fig. 4 we find four curves for 70, 80, 90, and 100 degree condensing, so we use the 90° curve. Running over from the left from 45° to the 90° curve and then downward, we find the heat rejection factor to be 91% or .91 (91 hundredths). Thus .91 of the total heat rejection represents the heat removed from the evaporator, and .09 represents the work done on the gas in compressing it.

Therefore the capacity of the condensing unit is 35,763 B.t.u. per hour (39,300 x .91). If we compare this to the manufacturer's rating table, we find that he shows capacity of 36,800 B.t.u. per hour for the unit at 45° evaporator and 90° condensing. This is about as close as we can expect of a field test. We conclude, therefore, that the compressor is O.K. and is doing all that can be expected under the conditions.

(To Be Continued)

by PAUL REED

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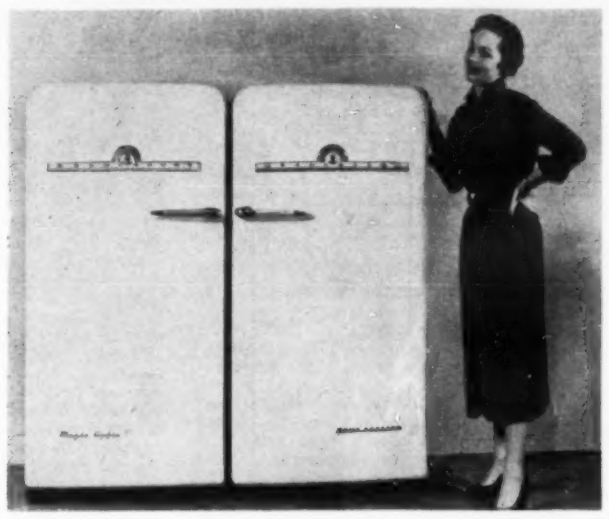
PLENTY OF STORAGE space is available in this new 9½-cu. ft. Kelvinator refrigerator model VKD-95 at $299.95. A pushbutton controls the "Magic Cycle" automatic defrosting system.



TWINS ON THE OUTSIDE are these two new Kelvinator products for 1954. On the left is a 9-cu. ft. refrigerator—while on the right, with same styling and cabinet proportions, is a new 12-cu. ft. home freezer.

WELL-STOCKED for quick treats. The between-meals refreshments are no problem when this new 1954 Kelvinator upright freezer, model FR-18V, is handy. Of 18-cu. ft. capacity, it holds 630 lbs. of frozen food in a cabinet only 31 in. wide.

Kelvinator Introduces '54 Models--

(Concluded from Page 1, Column 5)

and light, strong polystyrene on the other two.

Compressor Mounted In Steel Shell

All models are powered by a new Polarsphere compressor, with the entire assembly internally mounted in a steel shell for quieter operation.

With its "Magic Cycle" automatic defrosting system, this year Kelvinator has incorporated the means for evaporating defrost water automatically, without channeling it through long stretches of tubing.

MTD-120, 12-cu. ft. two-door, combination refrigerator-freezer has improved door shelves, big aluminum crispers, and Kelvinator's exclusive "Humidiplate," providing adjustable control of both cold and moisture throughout the entire automatic defrosting refrigerator section. There are twin roll-out shelves, and a one-pound capacity butter chest. The completely separate freezer chest has its own door, and will store up to 70 lbs. of frozen foods.

'Sea-Tone' Color Featured

MAD-110, 11-cu. ft. refrigerator in a 31-in.-wide cabinet, includes "Sea-Tone" color, 53 lbs. of storage capacity in the freezer and meat chest, roll-out shelf and full-width slide-out shelf. The freezer chest has all five walls refrigerated. There is a one-pound butter chest, twin aluminum crispers, deluxe aluminum shelving. Defrosting system is controlled by an electric clock, which can be set to defrost automatically once every 24 hours at any desired time.

KAD-90, 6-cu. ft. model, has every feature of the MAD-110 in a 28-in.-wide cabinet. Crispers are porcelain-enamelled steel with aluminum fronts.

VKD-95, in the same cabinet size as the KAD-90, is a 9½-cu. ft. refrigerator with pushbutton-actuated defrosting. Frozen storage capacity totals 51 lbs. in freezer chest and meat tray. There are door shelves, a butter chest, and twin polystyrene crispers.

VND-71, a 7-cu. ft. refrigerator in a 24-in. wide cabinet, is the lowest-priced Kelvinator ever built with defrosting. A pushbutton control operates the defrosting system. Features include color styling to match the rest of the line, full-width freezer chest, full width polystyrene crisper and door-shelves. Freezer and meat tray combined will store 45 lbs. of frozen foods.

1954 KELVINATOR REFRIGERATOR LINE STATISTICS

Model	Cu. Ft. Capacity	Cabinet Width	Cabinet Height	Suggested Retail Price*
MTD-120	12	31⅛"	65⅛"	$529.95
MAD-110	11	31⅛"	61⅛"	$419.95
KAD-90	9	28¼"	57"	$359.95
VKD-95	9½	28¼"	57"	$299.95
VND-71	7	24¼"	53½"	$249.95

*Includes five year protection plan on sealed unit.

Kelvinator's five 1954 home freezer models feature space-saving design, the claim being made that the new freezers provide greater storage capacity in more compact cabinets than any now available in the industry.

Two Upright Freezers

The two uprights are an 18-cu. ft. model that is a companion in cabinet proportions and appearance to the company's 11-cu. ft. refrigerator, and a 12-cu. ft. model that matches Kelvinator's 9-cu. ft. refrigerator in compactness and styling.

The line also includes three space-saving chest-type models—a 15-cu. ft. size in a cabinet of over-all proportions comparable to last year's 13, a 10-cu. ft. size in a cabinet as compact as last year's nine, and a 7-cu. ft. model replacing the 1953 6-cu. ft. model.

"The new upright freezers feature the same handsome exterior styling as Kelvinator's deluxe new refrigerators, and continue the family resemblance in size and interior 'Sea-Tone' color trim," said F. J. Worden, freezer sales manager. "The 12-cu. ft. upright and the 9-cu. ft. refrigerator cabinet are the same height and width; and the 18-cu. ft. upright similarly matches the 11-cu. ft. refrigerator in height and width."

'Concentrated Cold' Coils

Both uprights refrigerate by means of "concentrated cold" coils in the top of the storage chamber and each of three corrosion-resistant aluminum shelves. Deeper storage compartments and solid shelves minimize displacement of cold air with room air when the door is opened, eliminating the need for inner doors.

The entire liner is protected by porcelain in two coats, especially developed to withstand hard wear under extremely low temperatures. A full-width slide-out basket suspended beneath the bottom shelf provides storage space for odd-shaped items. The FR-18V has four door shelves, and the FR-12V three for frozen juices and small packages in daily use. The 18 also features a removable and adjustable wire shelf which can be used in two positions in the top storage compartment of the cabinet.

To simplify defrosting, each upright cabinet has a slight recess with a drain at the bottom, which may be opened to let out meltage into a shallow pan placed underneath the freezer to catch the defrost water.

Counter-High Chest Models

The chest-type models all feature a new door-latch, spring-action hinge and lid counter-balance that make the lid raise itself, even with a nudge of the elbow. Full-width lids are flush on all sides, with a slightly recessed top. All three chests are built to counter-height, 36 in. to the top of the lid, and all are of proper depth to pass through even narrow doorways. A grille separates the fast-freezing section and the storage compartment.

On models RF-10D and RF-15D, a new automatic interior light with a louvered cover to direct light down into the storage space is centered in the unobstructed inner panel of the lid. They also are equipped with an adjustable temperature control and a low-wattage signal light mounted in an attractive escutcheon on the front of the cabinet, and a convenient storage basket, a "pastri-rack" and a hanging-type thermometer.

The low-wattage safety signal light remains on all the time as long as power is on and food storage temperatures are safe. The light goes off if power is cut off or interior temperature rises to a danger point.

4 Basic Ranges

Kelvinator has concentrated most-wanted convenience features and maximum value into four basic electric range models for 1954, declared W. E. Saylor, range sales manager.

He said the four "basic" models and two new features—a "bonus broiler" and a removable oven bottom—provide dealers with a line that "costs less to stock and less to display."

The "bonus broiler" is a transferable broiler unit in two of the basic 40-in. models, which makes it possible to broil and bake simultaneously in a single-oven range. For use, the broil-unit is simply moved from its right-hand oven position, and fitted into a special outlet in the left hand storage compartment.

The removable oven bottom is "Kelvinator's answer to the homemaker's most difficult kitchen cleaning task-scouring baked-on food stains in the oven," Saylor said. "With this new Kelvinator feature, the entire oven bottom can be picked out as easily as a dish, and washed at the sink as conveniently as any cooking utensil."

In the 1954 line of eight different ranges, four are key values combining the best in features at the right price, Saylor said.

Six more features in addition to the "bonus broiler" and removable oven base, include

1. Micro-tube instant-heat surface units that start and stop instantly at the flick of a switch.
2. Removable chrome surface-unit rings detach at the flip of a finger, for easy cleaning.
3. Bowl-type porcelain drip-pans, deep-drawn to hold boil-overs, are self-ejecting, also for easier cleaning.
4. "Picto-heat" controls, with easy-to-read markings which show the homemaker at a glance which part of the surface unit is in use, and at what intensity, appear on all models. Markings are illuminated on two models.
5. The full-width storage drawers contain pocket-racks to store pan-lids.
6. A compact new rod-type oven unit completely encircles the bottom of the oven, without heat deflectors to interfere with fast preheating.

1954 KELVINATOR FREEZER LINE STATISTICS

Model	Type	Capacity Cu. Ft.	Width	Height	Over-all Depth	Depth for Install'n	Suggested Ret. Price*
FR-18V	Upright	18	31¼"	61⅜"	35¼"	28¼"	$499.95
FR-12V	Upright	12	28¼	57	31¼	28¼ (W)	$399.95
FR-15D	Chest	15	56¾	36	29⅝	27¾	$449.95
FR-10D	Chest	10	42⅝	36	29⅝	27¾	$349.95
FR-7D(#)	Chest	7	39	36	25¼	25¼	$289.95
FR-7S	Chest	7	39	36	25¼	25¼	$249.95

(*) Includes five-year protection plan on sealed unit.
(W) Width.
(#) Holdover model.

1954 KELVINATOR ELECTRIC RANGE LINE STATISTICS

Model	Width	Descriptions	Sugg. Retail Price
ER-494D	40"	Deluxe double-oven, illuminated "Picto-heat" switches	$439.95
*ER-494	40	Deluxe single oven, illuminated "Picto-heat" switches, "bonus broiler"	$399.95
*ER-474	40	Deluxe single oven, "bonus broiler"	$319.95
ER-464	40	Deluxe single oven	$269.95
*ER-434	40	Standard single oven, storage drawer	$229.95
ER-423	40	Standard single oven	$199.95
*ER 354	30	Deluxe "Great Scot" oven	$229.95
ER-324	30	Standard "Great Scot" oven	$199.95

(Bright metal lamp and automatic oven timer accessory for Models ER-434 and ER-423—$20.00).
*Key models for dealer display.

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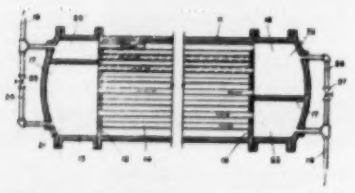
PATENTS

Week of August 25 (Continued)

2,649,698. SPECIAL VALVE ARRANGEMENT ON CENTRIFUGAL CONDENSERS AND COOLERS. Philipp Goldmann, Forest Hills, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application March 18, 1949. Serial No. 82,232. 4 Claims. (Cl. 62—115.)



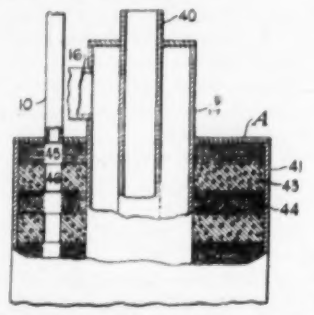
1. In a condenser arrangement for a centrifugal refrigeration machine, the combination of a shell, a plurality of longitudinally extending tubes in the shell through which condenser water passes, refrigerant from the refrigeration machine passing through the shell exterior of the tubes, compartments at opposite ends of said shell, a supply line for condenser water connected to a chamber in the compartment at one end of the shell, a bypass connecting the supply line to a second chamber in said compartment, a valve in the bypass, a discharge line connected to a chamber in the second compartment, a second bypass connecting the discharge line with a second chamber in the second compartment, and a second valve in said bypass, the opening of the two valves permitting the condenser water to make only a single pass through the shell resulting in the refrigerant being condensed, and the closing of the two valves permitting the condenser water to make a plurality of passes through the shell resulting in the condenser water being heated so that it may be used as a source of heat.

2,649,699. REFRIGERATOR CABINET. Charles G. Minor, Evanston, Ill., assignor of one-half to Albert G. McCaleb, Evanston, Ill.; Harry H. Gmeiner, executor of said Charles G. Minor, deceased; Ruth P. McCaleb, executrix of said Albert G. McCaleb, deceased. Original application Feb. 21, 1946. Serial No. 649,240, now Patent No. 2,537,367, dated Jan. 9, 1951. Divided and this application May 25, 1950. Serial No. 164,111. 8 Claims. (Cl. 62—117.4.)

1. A refrigerator assembly comprising, in combination, an outer casing including a base, a back wall and end walls, a heat insulated box-like housing fitting between said end walls of the outer casing, means including side panels having angularly disposed lower edge portions and trunnion supports carrying said box-like housing at a distance above said base for rocking movement between said end walls and from and toward said back wall, said box-like housing having an upright position and a forwardly tilted position, in each of which positions said box-like housing is supported through one of said

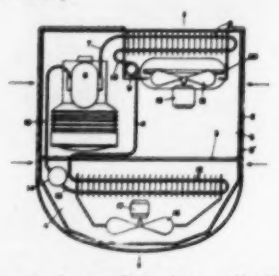
angularly disposed edges of each of the side panels, a refrigerating unit housed in the space between said base and the box-like housing, said box-like housing being spaced from the back wall of the outer casing to provide an air passage communicating with the space below the box-like housing, and hingedly supported means for covering the space between the base and box-like housing and movable with the box-like housing, the last mentioned means having louvers therein for the passage of air.

2,649,700. ABSORPTION-REFRIGERATING APPARATUS. Glenn T. Piper, North Canton, Ohio, assignor to The Hoover Co., North Canton, Ohio, a corporation of Ohio. Application May 21, 1949. Serial No. 94,599. 11 Claims. (Cl. 62—118.)



1. Absorption refrigerating apparatus comprising a generator-absorber vessel, a plurality of spaced apart porous metal heat conducting elements in said vessel and in heat exchange relation therewith, a solid absorbent in the pores of said heat conducting elements, each 100 cc. of void volume in said heat conducting elements being charged with a quantity of said absorbent sufficient to be saturated by from 55 to 65 grams of ammonia, a vapor conveying structure positioned between each pair of adjacent heat conducting elements and in contact therewith, said heat conducting elements and said vapor conveying structure being so constructed and arranged that the maximum distance of any part of said heat conducting elements to said vapor conducting structure does not exceed ¼ inch, and means for conducting vapor to and from said vapor conducting structure.

2,649,701. AIR CONDITIONING UNIT INCLUDING SUBCOOLING MEANS. James R. Del Signore, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application July 1, 1950. Serial No. 171,598. 3 Claims. (Cl. 62—140.)

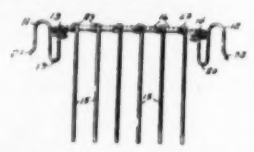


1. In an air conditioning unit, the combination of an evaporator, a condenser operatively associated with the evaporator and adapted to receive refrigerant therefrom, a spirally wound sub-cooling coil adapted to receive refrigerant in liquid form substantially free of gas from the condenser, a line for delivering liquid refrigerant from the sub-cooling coil to the evaporator, means for passing air in heat exchange relation with the evaporator to cool the air thereby precipitating moisture therefrom, a sump in which the precipitated moisture collects, said sump being placed adjacent to the condenser, a fan for passing air in heat exchange relation with the condenser, means for operating the fan, and a slinger for flinging moisture from the sump into heat exchange relation with the subcooling coil, said coil extending in a vertical direction adjacent the slinger.

2,649,702. SNAP FREEZING BY COOLING A MASS WHILE UNDER PRESSURE AND QUICKLY RELIEVING THE PRESSURE. Edward P. Kellie, Detroit, Mich. No Drawing. Application Sept. 1, 1950. Serial No. 182,837. 7 Claims. (Cl. 62—173.)

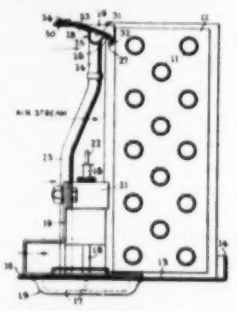
5. The method of freezing a generally solid food product containing moisture comprising subjecting the food product to a gaseous pressure higher than atmospheric, refrigerating the food product to reduce its temperature under such gaseous pressure to a temperature lower than the studdings and open at their lower ends, the base board being also formed with longitudinally extending slots forming air passages leading from the front face of the floor board and communicating with upper ends of the recesses.

2,649,967. ICE CUBE PITCHER GATE. Homer C. Tyson, Bethany, Ohio. Application April 21, 1950. Serial No. 157,289. 2 Claims. (Cl. 210—163.5.)



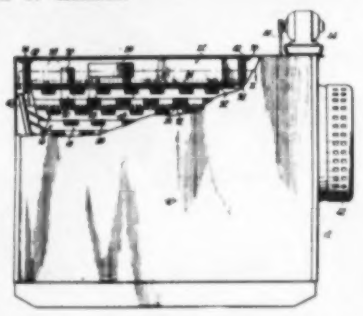
1. In an ice cube retaining gate, the combination which comprises a straight wire having horizontally disposed coils at the ends, U-shaped sections extended from the coils and inverted U-shaped clips extended from the U-shaped sections, a plurality of individual tines positioned on the wire with coils wrapped around the wire at the upper ends of the tines, and spacers positioned on the wire between the coils of the tines.

2,650,075. ATMOSPHERIC CONDENSER FOR REFRIGERATING SYSTEMS. John M. Andrews, York, Pa., assignor to York Corp., York, Pa., a corporation of Delaware. Application Sept. 6, 1951. Serial No. 245,325. 3 Claims. (Cl. 257—37.)



1. The combination of a condenser having a plurality of vertical, closely spaced plate-like fins; means for causing a horizontal stream of air to flow through the inter-fin intervals; a trough closed at its ends and having lateral margins at least one of which is inclined downwardly, the trough extending along the upper edge of the entrance face of the condenser with said downwardly inclined margin close to the edges of the fins; a lid adapted to seat against said margins and close the top of said trough, said lid being hinged remotely from the downwardly inclined margin and shaped to conform to the latter; means biasing said lid in the closing direction; and means for continuously delivering water under low pressure to said trough.

2,650,082. COOLING TOWER HAVING SPLASH DECK SUPPORTED BASIN. Leon T. Mart, Mission Township, Johnson County, Kans., assignor to The Marley Co., Inc., Kansas City, Kans., a corporation of Kansas.



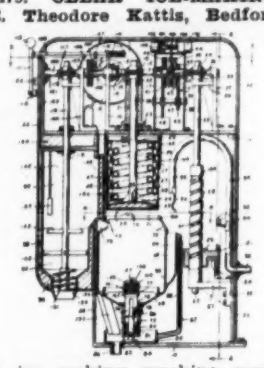
1. In a cooling tower, the combination of a splash deck assembly including a plurality of wood decks arranged in stacked relationship for free expansion and contraction as the assembly becomes saturated with water flowing therethrough and dries during nonuse; a water basin having a perforated bottom; and water diffusion means interposed between said bottom and the assembly, said resting directly on the assembly for movement therewith during said expansion and contraction of the assembly.

AVAILABLE FOR LICENSING OR SALE

Pat. 2,229,850. Water Cooler. Patented Jan. 28, 1941. Water cooler for a refrigerator door permits cool, filtered water to be drawn off from the cooler from outside the refrigerator without opening the door. Two filled water receptacles, containing filters surrounding valves in the necks of the receptacles, are removably supported in inverted position in cavities on the inner side of a refrigerator door. As the receptacles are placed in the cavities with the necks inserted in the neck-receiving depressions in the bottom of the cavities, the valves are automatically opened. A valved piping arrangement communicating with the bottom of the depressions extends outwardly through the door and is connected to a pivoted faucet at the outer side of the door. Check valves in the bottom of the receptacles are adapted to open when water is drawn off to admit air into the receptacles. (Owners) James W. Hoskins, 1654 S. Maple Blvd., Spokane, Wash., and Truan T. Lester, Lincoln, Mont. Group 35—84. Reg. No. 51,466.

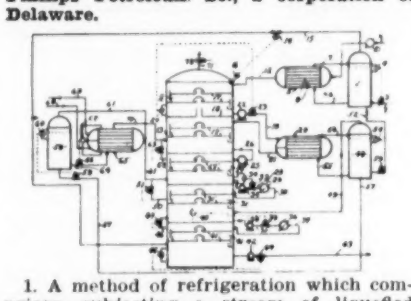
Week of September 1

2,650,479. CLEAR ICE-MAKING MACHINE. Theodore Kattis, Bedford, Ind.



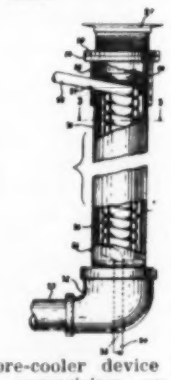
1. An ice making machine comprising a refrigerating cup; a water cup; motor driven means for revolving the refrigerating cup; motor driven means immersing the refrigerating cup while being revolved in said water cup for a period to freeze water from the water cup on the surface of the refrigerating cup and then withdrawing the water cup from around the refrigerating cup; an ice cutter bearing toward said surface and traveling with said water cup to chip ice from said surface; a water supply line to discharge into said water cup; valve means controlled by travel of the water cup as said refrigerating cup is being immersed to fill said water cup from said line.

2,650,480. LOW-TEMPERATURE ABSORPTION REFRIGERATION. Forrest E. Gilmore, Bartlesville, Okla., assignor to Phillips Petroleum Co., a corporation of Delaware.



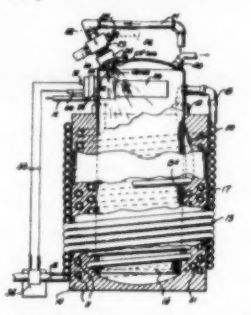
1. A method of refrigeration which comprises, subjecting a stream of liquefied ammonia in several successive stages to a pressure drop to flash a portion thereof at each stage into gaseous ammonia to cool the liquid ammonia remaining at each stage and progressively absorbing the ammonia vapors thus generated with a stream of aqua ammonia in stages of increasing concentration and pressure, whereby the liquid ammonia remaining in the final stage is cooled to a desired temperature and removing the heat of basorption from the aqua ammonia stream prior to each absorption step.

2,650,800. WATER COOLER. Halsey W. Taylor, Warren, Ohio, assignor to Halsey W. Taylor Co., Warren, Ohio, a corporation of Ohio.



2. A pre-cooler device for a drinking fountain, comprising, an upright drain pipe, a supply conduit for drinking water having a coiled portion disposed in upright relation within said drain pipe, said coiled portion having a laternally extending upper terminal portion and a generally coaxially extending lower terminal portion, a coupling threaded to the upper end of said drain pipe and having an opening in its wall through which said upper terminal portion passes, a deflector collar fitting closely within said coupling above said opening and having an inner peripheral discharge lip overlying the upper end of said coiled portion, and an elbow threaded to the lower end of said drain pipe and having an opening in its wall and in general alignment with the axis of said coiled portion and through which said lower terminal portion passes, whereby said pre-cooler device may be assembled by disposing said upper terminal portion through said coupling opening, disposing said drain pipe over said coiled portion and threading said drain pipe to said coupling, and disposing said lower terminal portion through said elbow opening and thhreading said elbow to said drain pipe.

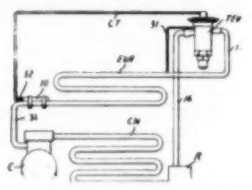
2,650,808. CARBONATOR COOLER. Abraham J. Cohen, Samuel Levine, and Morris Caminear, New Haven, and Stephen S. Price, North Haven, Conn. Application Nov. 9, 1950, Serial No. 194,903. 1 Claim. (Cl. 261—11.)



A carbonator cooler of the class described comprising a refrigerated block consisting of a solid cast body, a refrigerating coil embedded within said block, said refrigerating coil having an inlet and outlet means exteriorly of the block, said block having a socket closed at one end and open at the other end, a tank fitted in said socket and projecting beyond the open end of said block, an exterior primary stage water cooling coil encircling the exterior face of said block and snugly fitting thereagainst, a secondary water cooler coil embedded within said block in close proximity to said socket and tank, the refrigerating coil being interposed between the exterior primary stage water cooling coil and the embedded secondary water cooling coil, the primary and secondary water cooling coils being connected in series, an inlet means connected to one end of the primary coil, a water spray discharge nozzle connected to the discharge end of said secondary coil, said nozzle being carried by the outer end of said tank outwardly of said block, means for supplying carbon dioxide to said nozzle in a manner whereby a mixture of a water spray and carbon dioxide is discharged into the upper end of said tank for a third stage of cooling through a single fitting upon said tank, a level control device carried within the outer end of said tank and inwardly spaced relative to said nozzle in the path of the spray discharge of said nozzle and above said refrigerated block to maintain a proper level of storage of carbonated water within the tank, and a water pump connected to said primary coil and controlled by said level control device for controlling the supply of water to said primary coil.

REISSUES

23,706. REFRIGERANT EXPANSION VALVE. Harold T. Lange, Webster Groves, Mo., assignor to Sporlan Valve Co., St. Louis, Mo., a corporation of Missouri. Original No. 2,573,151, dated Oct. 30, 1951, Serial No. 778,814, Oct. 9, 1947. Application for reissue June 21, 1952, Serial No. 294,953. 13 Claims. (Cl. 62—3.)



1. In a refrigerant system of compressor-condenser-evaporator type, including a thermostatic expansion valve together with a thermal responsive device for actuating the valve, said device including a fluid motor and a fluid-charged thermal sensing unit, means translating fluid expansion within the sensing unit, to the valve for actuation of same, the sensing unit being of chambered characteristic, and a mass of a solid material within the chambered portion of the sensing unit providing an augmented condensing surface and mass, said mass having a predominant proportion of its surface area spaced from the material of the sensing unit and a greater heat capacity than the material of the sensing unit.

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IMPERIAL model H96D refrigerator.

Quicfrez Line--

(Concluded from Page 1)

"big capacity" vegetable storage, adjustable shelving arrangements to accommodate bulky items, touch-type door latches, and 11-point cold control. Highlights of the models are listed as:

Custom H74G—This model contains a 32-lb. freezer chest, with a snap spring door that serves as a loading shelf when open. It is equipped with two ice cube trays that hold 4 lbs. of ice.

Like other models it has a "Quic-Chill" tray, leveling glides, and "dramatic" coloring. The H74G has a net storage space of 7.2 cu. ft., with total net shelf area of 13.6 sq. ft.

Stylist H74H—Features include a 32-lb. freezer chest, full-width crisper and Quic-Chill tray, plus two "Handi-Shelves" recessed in the door. This model has a total net storage space of 7.4 cu. ft., and has 13.9 sq. ft. of shelf area.

Imperial H74J—Total net shelf area is 12.7 sq. ft. A butter keeper that preserves butter at proper temperatures for easy spreading, full-width crisper and Quic-Chill tray, door shelves, and a 32-lb. freezer chest are features of this 7.4-cu. ft. unit.

The H74G, H74H, and H74J are 51¼ in. high, 24 in. wide, and 27½ in. deep.

Stylist H94C—This model has a full-width freezer chest that holds 36 lbs., a net storage space of 9.4 cu. ft., and a total net shelf area of 14.7 sq. ft.

Imperial H96D—Among features of this 9.6-cu. ft. model are full-width freezer chest, large crisper, three shelves in the Handi-Dor, adjustable shelves, and butter keeper. Frozen food storage capacity is 36 lbs. Total net shelf area is 14.7 sq. ft.

The H94C and H96D are 55½ in. high, 28 in. wide, and 27½ in. deep.

Highlights of the 1954 chest-type freezer line are "Dri-Chest" construction, to prevent moisture condensation on the outside of the cabinets; a tamper-proof cold control; and a counterbalanced lid, according to the company. The upright models feature high density insulation, all steel construction, functional styling, and small wall space requirements, Quicfrez said.

Features of the new freezers are:

Q42A (Upright)—This model holds up to 200 lbs. of frozen food. Net shelf area is 7 sq. ft. The freezer is 38½ in. high, 24 in. wide, and 28 in. deep.

QU201A (Upright)—Holding up to 700 lbs. of food, this model has three Handi-Shelves in the door, four refrigerated shelves, and a utility shelf that tilts easily to hold packages when placing or removing food.

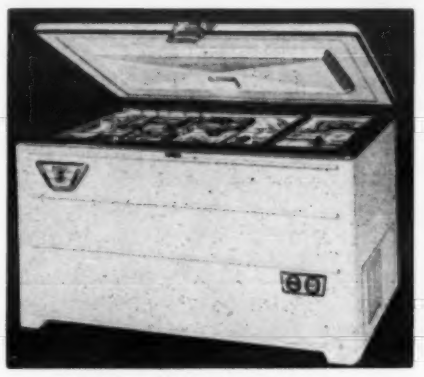
Dimensions are 48 in. wide, 29 in. deep. The compressor is a ½-hp. hermetic unit with "Freon-22."

Q9D—This 9-cu. ft. model holds 315 lbs. of food and has a 2.2-cu. ft. freezing compartment. Over-all dimensions are 36 in. high, 27½ in. deep, and 41 in. long. A divider,

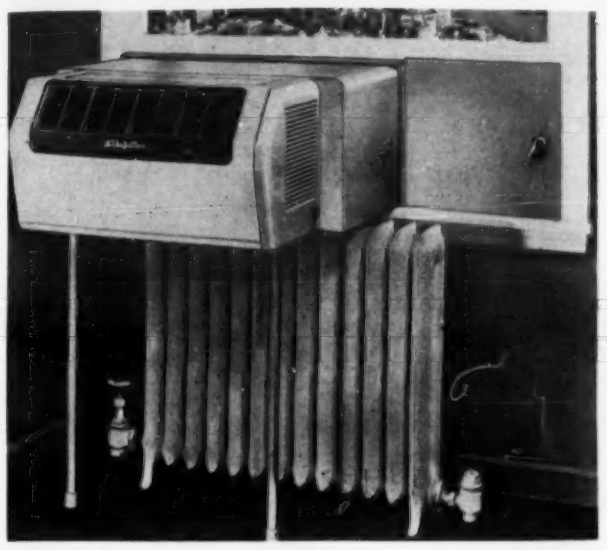
Q132D—This model holds 462 lbs. of food and has space for 11 cu. ft. of normal storage, with a 2.2 cu. ft. fast-freeze compartment. Coiling is on all four sides, and bottom, of fast freezing compartment.

Q168D—Baskets, dividers, and separators, automatic interior flood light, gold and green control panel, chrome hardware, and interior green trim are among features of this model. The Q168D has a total capacity of 16.8 cu. ft., and is 36 in. high, 64 in. wide, and 27½ in. deep.

Q20D—This 20-cu. ft. freezer holding 700 lbs. of food has 17.8 cu. ft. of regular storage plus a 2.2 cu. ft. fast freeze storage compartment. It is 36 in. high, 27½ in. deep, and 76 in. long.



MODEL Q168D home freezer.



STORAGE IS NO PROBLEM with Perfection's new room cooler. Units are designed to be installed inside window glass line so that windows need only to be closed. Beige finished cabinets harmonize with room decor.

Perfection Enters Room Cooler Field--

(Concluded from Page 1)

flow of conditioned air in one or several directions.

By using a casement window adapter designed by Perfection engineers, the air conditioners may even be installed at casement windows, without multilating the casement sash, the company said.

The decorator-styled Perfection unit is finished in beige to match modern home furnishings.

For commercial applications, engineers have designed a portable air conditioner utility cart which makes it possible to bring the air conditioning unit to a permanently-installed weather cabinet. There, the unit slides into the weather cabinet "in a bureau drawer motion."

"Thus," the company said. "while cabinets may be installed in every room of a hotel, hospital, or other large building, the air conditioning units themselves are brought to the rooms only as needed.

"All of the Perfection room air conditioners fit into the same cabinets, and one size filter fits all three models.

"With the Perfection commercial room air conditioners," the company stated, "there is no problem of storage in winter time of the units. They are so designed that the entire unit is installed inside the window glass line. The window merely has to be closed behind the unit. Similarly, this eases the window washing problem."

The company said pollen, dust, and dirt are cleansed from incoming room air by the double cleaning of its large-faced viscous-coated filter and special air wash.

Correction

"REFRIG-N-FREEZ," United Refrigerator Co.'s newest unit, put a 7-cu. ft. refrigerator on top of a 350-lb. capacity freezer. An incorrect picture of the 2-door model was run in the Dec. 7 issue of the NEWS.

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MECHANICAL ENGINEER
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Assistance to relocate in Los Angeles area. All replies confidential.
Box 4456, Air Conditioning & Refrigeration News.

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RATES for "Positions Wanted" $5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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POSITIONS WANTED

MANUFACTURERS, DISTRIBUTORS: I offer you experience. Eighteen years installation and service, all types and sizes, plus five years instructing refrigeration. Factory service representative available January. Family responsibility. Free to travel; know and prefer West. High recommendations, sober, eager to learn. Interested heating and air conditioning. MAURICE I. SMITH, 10045 9th Avenue, S. W., Seattle 66.

SALES ENGINEER-ESTIMATOR, thoroughly competent in air conditioning, refrigeration, heating, gas and oil burning. Technical graduate, professional engineer. Seeking connection with established, reputable contractor in high potential area. Twenty years' experience. Prefer to work in terms of gross profit, but will entertain any reasonable proposition. BOX 4458, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

MANUFACTURER'S REPRESENTATIVES wanted by manufacturer of open-type refrigerated display cabinets. We have high distributor and consumer acceptance. Cabinets are moderately priced, well-engineered. Change of selling procedure makes this opportunity available January first. Reply should state territory covered, line represented. BOX 4459, Air Conditioning & Refrigeration News.

FACTORY REPRESENTATIVES: Major manufacturer of complete line of ceiling suspended coils, air conditioning coils, and evaporative condensers has openings in several areas for factory representatives. Submit resume of personal and business qualifications to: BOX 4461, Air Conditioning & Refrigeration News.

A FAST-GROWING distributor-contractor organization has unusual opportunity for an air conditioning and refrigeration engineer, to take complete charge of sales estimating, office engineering, and service department. Salary and bonus, with opportunity to purchase interest in business. BOX 4462, Air Conditioning & Refrigeration News.

MANUFACTURER'S REPRESENTATIVES wanted by Midwest manufacturer of commercial refrigeration equipment. Must have following with refrigeration dealers. Give full details relative to lines now carried, and territory. BQX 4463, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

BRAND-NEW GENERAL Electric and Copeland twin cylinder bodies with flywheel and service valves—¾ hp., only $42.00. 1 hp., $47.00 (10% discount in lots of 6). Latest model General Electric fan-cooled hermetic units, ⅛ hp., $34.00; ¼ hp., $37.00. Home refrigeration kits, consisting of ⅛ hp. Tecumseh unit, evaporator and capillary, completely assembled and factory-tested, only $40.00. All equipment new and factory-guaranteed. MANN REFRIGERATION SUPPLY COMPANY, 440 Lafayette Street, New York City; or phone GRamercy 3-8000.

ATTENTION SERVICEMEN — Send for our 1953 Catalog. Relays, expansion valves, controls, dehydrators, V belts, open & hermetic units. All new merchandise at great savings up to 50%. Sold on Money Back Guarantee. WALTER W. STARR REFRIGERATION, 2833 Lincoln Ave., Chicago 13, Illinois.

MISCELLANEOUS

AVAILABLE FOR immediate delivery—Up to 48,050 lbs. 1/16" thick grade 270 Panelyte, suitable for painting; sheets 48" x 60". Also, 33,070 lbs. 3/32" thick grade 270 Black Panelyte, sheets 48" x 60". Attractive price. Contact: DI TELLA CORPORATION, 150 Broadway, New York City.

NORGE SEALED units remanufactured or exchanged. Immediate delivery from stock, 2 year warranty. Freon refrigerant. Write for prices and shipping instructions. Genuine Norge terminals for Norge sealed units. Complete sets of three $1.15 plus postage. MODERN REFRIGERATION CO., INC., 12541 E. McNichols Road, Detroit 5, Mich.

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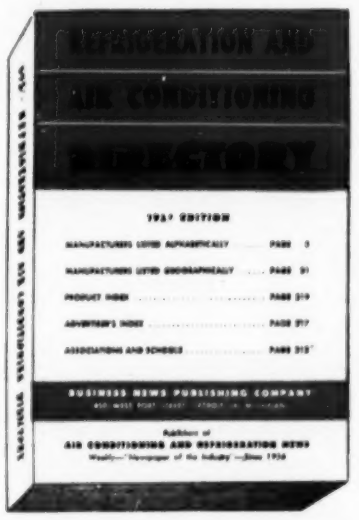

More than 10,000 listings

Seventy-one companies will manufacture air conditioning room coolers this year. Last year there were only 43!

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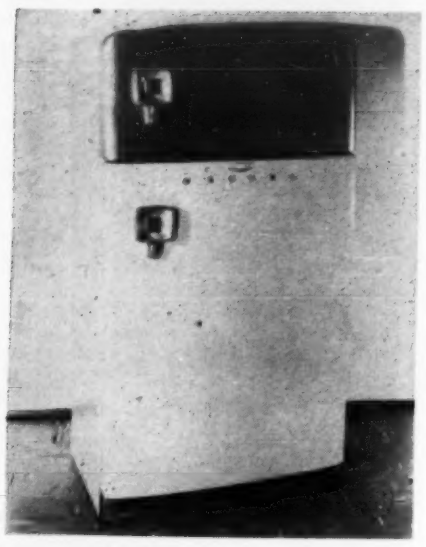
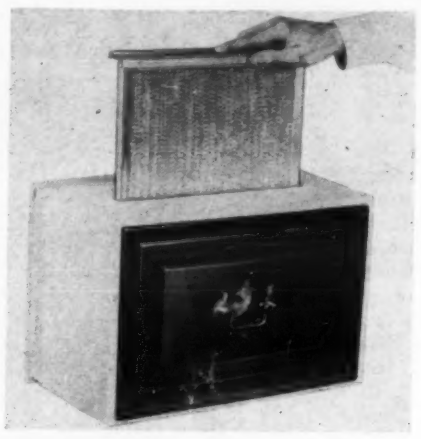


COPPER ADDS NEW NOTE. Upper door of this model is plated with satin-brushed copper, and the scuff plate at the bottom is finished to match.

OFFERING 8.6 cu. ft. of storage space in a cabinet no larger than previous 6-ft. refrigerators is Servel's electric model 844-C.



DESIGNED TO FIT small windows, this new Servel casement-type room air conditioner uses a permanent aluminum-mesh filter, which can be cleaned with soap and water for reuse.

Servel '54 Appliance Line--

(Concluded from Page 1, Column 3)

able in different voltages and finishes).

The room cabinet of the casement-type conditioner is 14½ in. wide. It will fit 197 different types and sizes of casement windows that are too small for conventional window-type air conditioners which usually measure 27 in. wide or more, the company said. This cooler may also be used with standard windows.

The decorator-designed room cabinet of the unit has a furniture-like appearance. It is made of blonde and mahogany polystyrene plastic, which is said to be colorfast to sunlight and easy to keep clean.

The conditioner has no visible controls. It is operated by grasping the handle on the front, and pulling the "drawer" out to one of three different positions. The first position provides ventilation alone, the second both cooling and ventilation, and the third maximum cooling.

Air is circulated by aluminum propellor-type fans through pre-set grilles at the upper and lower edges of the "drawer." These grilles are set at 45° angles to prevent drafts.

The full-width filter is of the permanent aluminum-mesh type. It is easily removed through a slot in the top of the cabinet, and can be cleaned with soap and water for reuse.

The cooler's hermetically sealed refrigerating unit is housed outside the window in a steel cabinet. The unit will remove nearly two pints of moisture per hour, Servel said.

A year ago, Servel introduced a furniture-styled electric room air conditioner for summer cooling. For 1954—with no change in size or outward appearance—the room air conditioner can be used for heating, too, distributors were told.

The "reverse cycle" cooling-heating room air conditioner is offered in two models—¾ hp. and 1 hp. This unit will cost consumers about 10% more than the unit which provides only cooling, according to the company.

The 19 refrigerator models range in capacity from 6 to 12 cu. ft. Eight of these models are equipped with electric compression (motor-driven) freezing systems. Seven are gas absorption models. The absorption type of refrigeration is also used in two electric models and in two kerosene models.

The electric compression series offers the "automatic ice-maker" feature in two double-door models and one single-door model. The gas absorption series includes one double-door model and one single-door model with the "automatic ice-maker."

Among features of the new models are automatic defrosting, door shelves, egg racks, cheese chests, "dew-view" vegetable fresheners, quick cold shelves, butter containers, meat shelves, and "trip-saver" door handles.

Through the use of new cabinet design and construction, the three compact 8½-ft. models in the electric compression series are no larger in exterior dimensions than 6-ft. cabinets of earlier design, it was pointed out.

The exclusive "automatic ice-maker," introduced in 1953 by Servel, will continue to be the most important sales feature of that company's electric and gas refrigerators for 1954.

"In sizes where the public had a choice between 'automatic ice-maker' and 'no automatic ice-maker,'" he said, "three out of every five Servel refrigerators were equipped with the 'automatic ice-maker.'"

Suggested installed cash prices of the 1954 refrigerators were announced as follows (prices of the electric compression and kerosene absorption series include 5-year warranty; those of gas absorption and electric absorption series include 10-year warranty):

ELECTRIC COMPRESSION SERIES

Model	Total Volume	Suggested Installed Cash Price
1249-C	11.7 Cu. Ft.	$599.50
1049-C	9.5 Cu. Ft.	529.50
947-CD	9.2 Cu. Ft.	439.50
946-CD	9.4 Cu. Ft.	369.50
945-C	9.3 Cu. Ft.	299.50
846-CD	8.6 Cu. Ft.	299.50
845-C	8.5 Cu. Ft.	259.50
844-C	8.6 Cu. Ft.	....

GAS ABSORPTION SERIES

1149-G	10.7 Cu. Ft.	639.50
1047-GD	10.4 Cu. Ft.	549.50
1046-GD	10.6 Cu. Ft.	479.50
846-G	8.3 Cu. Ft.	349.50
845-G	8 Cu. Ft.	299.50
844-G	8.2 Cu. Ft.	279.50
644-G	6.1 Cu. Ft.	....

ELECTRIC ABSORPTION SERIES

846-E	8.3 Cu. Ft.	369.50
644-E	6.1 Cu. Ft.	....

KEROSENE ABSORPTION SERIES

846-K	8 Cu. Ft.	439.50
644-K	6.1 Cu. Ft.	339.50

(Models 1249-C, 1049-C 947-CD, 1149-G, and 1047-GD have "automatic ice-maker.")

Servel's gas water heaters for 1954 include a new 40-gal. model in the lowest-priced series, where the largest size was formerly 30 gal. A 45-gal. size has been added to the medium-priced series, which previously had only 20 and 30-gal. models. A new 75-gal. heater for larger homes has been added to the "high-quality" series.

In the company's line of electric water heaters, a 50-gal. model has been added to the counter-height table-top series.

ASHVE Program Set for Jan. 25-27--

(Concluded from Page 1, Column 4)

ploit the possibilities of the historical sites and industrial interests of Houston. For the ladies there will be a luncheon and style show, a play at the Playhouse theater, teas, and sightseeing trips.

Houston's proximity to Mexico will afford members and guests and excellent opportunity to visit the land of fiesta following the meeting. A post-meeting trip to Mexico City, Acapulco and other cities is being arranged with Ralph L. Preble, of U. S. Travel Agency, Washington, D.C. in charge, and all inquiries should be addressed to him.

Plans and details for the meeting are under the direction of the Committee on Arrangements headed by General Chairman Mills and R. J. Salinger, vice chairman. Chairmen of the special committees for the meeting are: A. B. Ullrich, Jr., banquet; F. M. Neil, entertainment; A. J. Natkin, finance; C. L. Fleming, ladies; B. P. Fisher, publicity; E. G. Floeter, Jr., reception; I. A. Naman, sessions; H. W. Broadwell, special events; A. F. Barnes, transportation.

The technical program follows:

MONDAY, JAN. 25, 9:30 A.M.

L. T. Mart, Kansas City, Mo., chairman.

"Prediction of Cooling Tower Performance," by W. W. Smith, College Station, Texas.

"Automobile Air Conditioning—Progress and Problems," by P. J. Kent, Detroit.

"Pressure Loss of Air Flowing Through 45° Wooden Louvers," by Phil R. Cobb, College Station, Texas.

TUESDAY, JAN. 26, 9:30 A.M.

P. B. Gordon, New York, N. Y., chairman.

"Circuit Analysis Applied to Load Estimating," by H. B. Nottage, Inglewood, Calif., and G. V. Parmelee, Cleveland.

"Heat Flow Characteristics of Hot Water Floor Panels," by E. L. Sartain and W. S. Harris, Urbana, Ill.

"Effects of Non-Uniformity and Performance," by L. F. Schutrum and C. M. Humphreys, Cleveland.

"Field Studies of Floor Panel Control Systems, Part II," by A. B. Algren, E. F. Snyder, Jr., and R. R. Head, Minneapolis.

WEDNESDAY, JAN. 27, 9:30 A.M.

B. H. Jennings, Evanston, chairman.

"Costs of Operating the Heat Pump in the Equitable Building," by J. D. Kroeker and R. C. Chewning, Portland, Ore.

"Availability and Utilization of Solar Energy," by R. C. Jordan and J. L. Threlkeld, Minneapolis.

"Effects of Air Conditioning on Plant Growth," by F. W. Went, Pasadena, Calif.

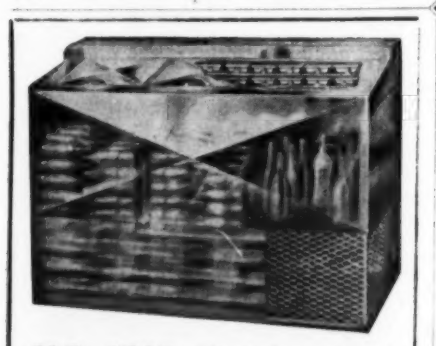
WEDNESDAY, JAN. 27, 2:00 P.M.

W. A. Grant, Syracuse, chairman.

"Room Air Distribution Research for Year-Round Air Conditioning—Part II, Supply Outlets at Three Floor Locations," by H. E. Straub and S. F. Gilman, Urbana, Ill.

"Cooling a Small Residence Using a Perimeter-Loop Duct System," by D. R. Bahnfleth, C. F. Chen, and H. T. Gilkey, Urbana, Ill.

"A Two-Sphere Radiometer," by D. J. Sutton and P. E. McNall, Jr., Minneapolis.



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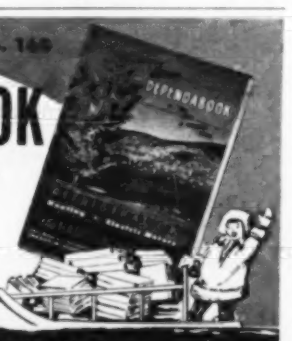

The HARRY ALTER CO. Inc.
1728 S. Michigan Avenue, Chicago 16, Illinois
WHOLESALE ONLY

This message first appeared in January 1952
We consider it just as important today

WHAT'S A WHOLESALER?

At the end of every production line rises the greatest single responsibility of business—the profitable distribution of a product. So important is this responsibility that men all over the world dedicate their minds, money, voices, hands, eyes, ears, noses, nerves, and sometimes their very lives to its fulfillment.

As a group these men are termed "Salesmen," "Representatives," "Agents" and "Reps." They are called other things frequently.

So intent are they on marketing their products successfully, and so dire are the consequences if they don't, that they solicit the help of one of the most singularly important influences in the distribution cycle—the wholesaler.

The wholesaler has been known as a "Jobber," "Distributor," "Dealer" and smiles more often when called a wholesaler than by any other name.

He is linked to reputable manufacturers by supply, to their salesmen by merchandising, to his family by love, his employees by loyalty and to his customers by outstanding service and friendship.

He places more orders, receives more merchandise in greater variety, stocks and restocks more shelves, makes more shipments in less time, holds more confidences and credit across longer counters with a larger capital investment in a smaller area than does either his suppliers or his customers.

Every day he dispenses more information on a wider variety of products than is provided in the literature furnished him. It is taken from years of experience and is added to the knowledge of the craftsmen who are his customers.

The wholesaler can be counted among the members of leading associations, civic groups, fraternal orders, religious societies, country clubs and bowling leagues. His divergent interests compel him to be up early and out late. His favorite but rare relaxations are found at home, on vacation, with a fishing rod or behind a bird dog; at a card table and over a cup of coffee with Joe around the corner.

The wholesaler is not typically a small businessman, neither is he a tycoon; rather he is a well established, highly regarded commercial institution; sincere, practical, reliable; and on his shoulders rests the production lines of tomorrow—profitable distribution today.

BUY FROM YOUR WHOLESALER

WOLVERINE TUBE DIVISION, Calumet & Hecla, Inc., *Manufacturers of Quality-Controlled Tubing,* 1413 Central Avenue, Detroit 9, Michigan. Plants in Detroit, Michigan and Decatur, Alabama.